Smithsonian

June 1995

Contemporary crafts find a home in the White House (p. 52)

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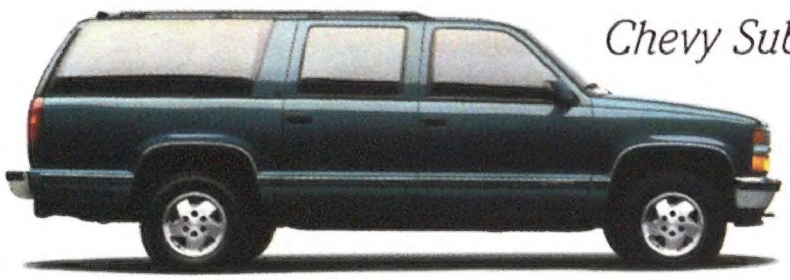

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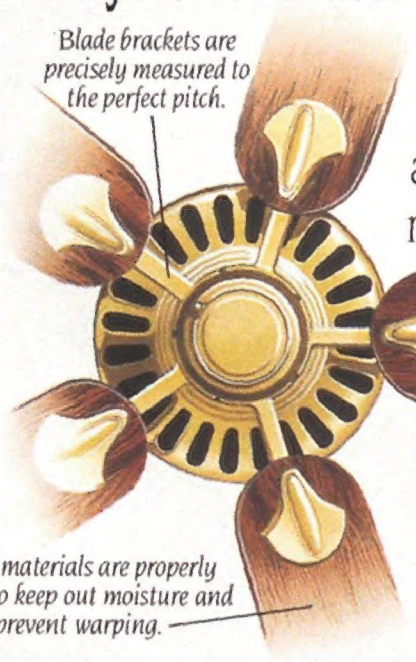
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Why are Hunter fans 81% quieter?

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Why is Hunter the style leader?

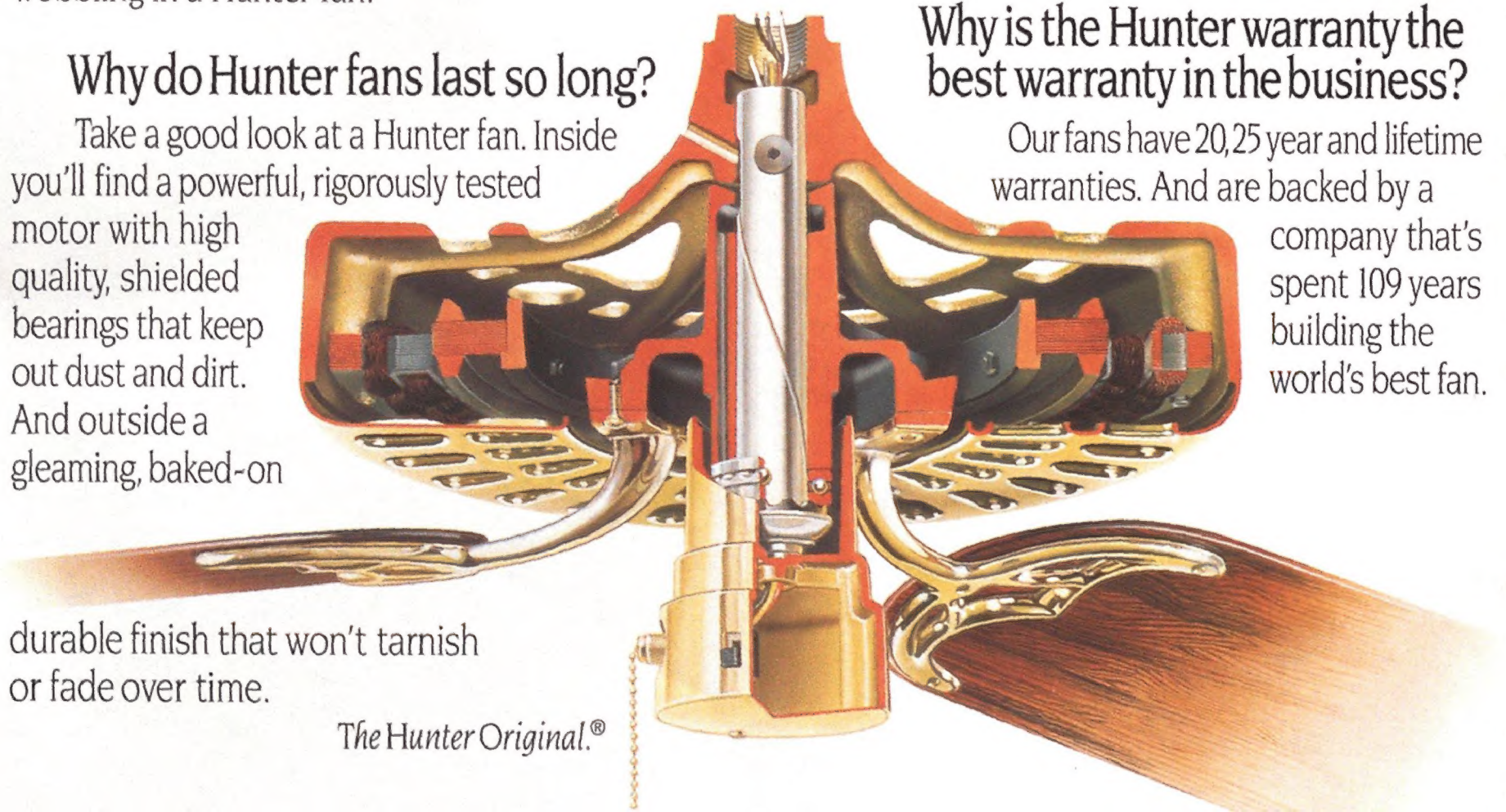
The styles pictured are just a sampling. With over 350 styles to choose from, we have a Hunter fan for every room and decor.

Why do Hunter fans last so long?

Take a good look at a Hunter fan. Inside you'll find a powerful, rigorously tested motor with high quality, shielded bearings that keep out dust and dirt. And outside a gleaming, baked-on durable finish that won't tarnish or fade over time.

Why is the Hunter warranty the best warranty in the business?

Our fans have 20, 25 year and lifetime warranties. And are backed by a company that's spent 109 years building the world's best fan.



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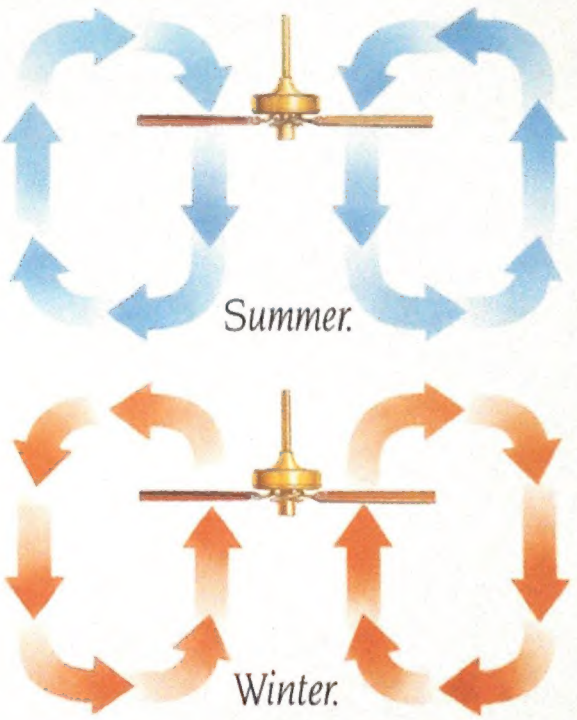

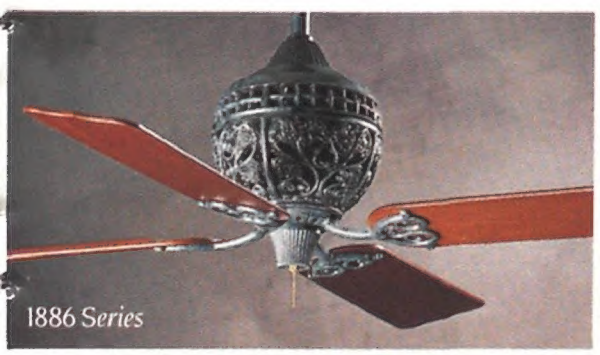
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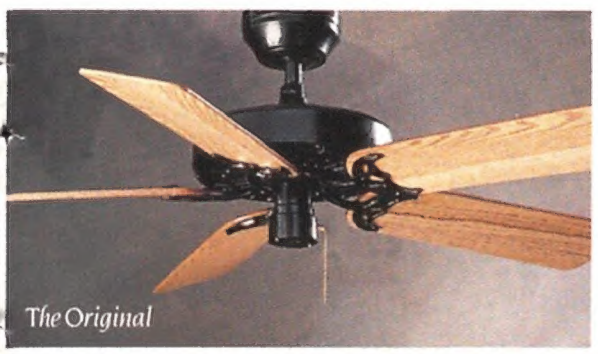
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June 1995

Smithsonian

Volume 26, Number 3

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Photograph by John Bigelow Taylor

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The Wonder of Iron-2

An iron kettle is always used for boiling water in the traditional Japanese tea ceremony. Iron is an ideal agent for purifying the water.

Cooking with Iron

By Tomomi Kono

Although many cooking utensils are made of iron, iron kettles and pans most actively promote flavor. An iron tea kettle is always used when preparing tea for the Japanese tea ceremony; indeed, it has long been accepted that it is nearly impossible to make good quality hot water for tea without using an iron kettle.

Water boiled in an iron receptacle is ideal for making tea, as traces of the metal dissolve in the water and agglutinate with organic compounds, leaving hot water that is very nearly pure. More precisely, the water is partly ionized and subjected to a magnetic-like force. The minute amounts of metal dissolved in the water are drawn together, agglutinate with the organic compounds, then precipitate out and adhere to the iron receptacle. The resulting pure water helps create tea with an extremely fine flavor. A danger exists, however, that if the metal used for the receptacle is not of a very high purity, the color of the tea could be altered, or its flavor impaired.

In Japanese cooking, an iron pan is used for preparing beef for sukiyaki. Since heat is distributed evenly throughout such a pan, charring of the meat can easily be prevented. Furthermore, the meat remains tender, as slow and even heating preserves the spiral structures of the proteins in the beef. Similarly, a steel plate made of thick iron is most desirable in cooking meat for teppanyaki.

Iron pans are quite useful for the "clean" preparation of vegetables as well; flavor can be maximized and sticking handily avoided. This is the case even for those vegetables with a high sugar content, such as onions and carrots, that are rather prone to sticking and burning.

An iron pan is good for sautéing when using Chinese cooking methods. Since iron retains a good deal of heat, food can be cooked vigorously for a brief period without becoming inconveniently sticky.

About the Author:
Tomomi Kono specializes in food science, and is a director of The Kono Food Research Institute. He is currently a professor of The Osaka Kun'ei Womens' College, and has more than 160 published works.

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General Motors.

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Secretary Heyman's comments

Smithsonian Perspectives

The Festival of American Folklife is a popular model for presenting grass-roots culture to the public

Every summer, a new museum with neither roof nor walls arises on the National Mall. Its collection—of people, performances, lectures, processions, signs and foods—offers a somewhat incongruous presence on the nation's front lawn, flanked as it is by the monuments, federal buildings and national museums. But the Festival of American Folklife, now in its 29th year, has become a mainstay of the Smithsonian, an immensely popular living exhibition of our American and worldwide cultural heritage. The Festival, which has been called "a living museum," "a national treasure," "a service at the Church of the Great American Idea," is an outdoor extension of the Smithsonian, with the same mission but a somewhat different approach from most museums.

The Festival's approach is to help people represent themselves, to be broadly inclusive, and to present grassroots cultural traditions in an engaging, educational way. The Festival assumes that people who create much of the art, artifacts and technology housed in our museums are themselves national treasures. Our researchers work with represented communities to develop accurate and insightful public presentations that usually include explanatory signs, printed program books, introductory scholarly presentations, musical performances, craft and cooking demonstrations, celebratory reenactments, and narrative discussions. Overall, the tone is conversational, the spirit free, the event participatory. Located on the Mall, the Festival has no walls of exclusion. The list of states, nations, occupations, communities and themes represented is encyclopedic.

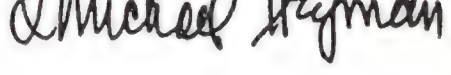
The Festival has illustrated the cultural richness and diversity of our nation and the world. It has also demonstrated how differences can be appreciated and serve as a source of strength and creativity. If only for a few days, the Festival provides an excellent venue for bringing people together—no mean feat in these troubled times. Understandably, it served as a centerpiece of the American Bicentennial celebration in 1976, and more recently as a model for such large-scale public events as the Black Family Reunion, the L.A. Festival, Presidential Inaugural festivals and Olympic Arts festivals.

The Festival extends beyond the Mall with the production of Smithsonian Folkways Recordings, traveling exhibits, books, films and educational programs. Some productions have won Academy Awards, Emmys or Grammys. Festival exhibitors such as Michigan, Massachusetts, Hawaii, Oklahoma, New Mexico, the Virgin Islands and many nations have restaged their individual programs back home, sometimes using them to establish ongoing cultural heritage projects. *White House Workers*—a 1992 Festival program on the work lore of White House butlers, doormen, seamstresses and others—illustrates this fruitfulness. The program was filmed and edited into a recently aired television documentary. It was also developed into an exhibit now traveling to Presidential libraries across the nation; a second version was mounted for local schools and served as a basis for educational programs (one hosted by the First Lady). The exhibit will eventually reside in the new White House Visitors Center. The program also led to a "Blacks in the White House" issue of *American Visions* magazine last February.

This year's Festival runs from June 23 through June 27 and June 30 through July 4, and features American Indian women's traditions, the heritage of the Czech Republic and Czech-Americans, music of Russian-American immigrants, and the cultural life of the Cape Verdean community. This latter program well illustrates the Festival process. Cape Verde, an island chain located off the west coast of Africa, is an independent republic and former Portuguese colony. Cape Verdean-Americans, numbering about 400,000, most of them born and raised here, began immigrating to New England in the 18th century, and later played instrumental roles in the whaling and cranberry industries. Cape Verdeans have an important story to tell about their role in American life, their immigrant and continuing transnational cultural experience, their multiracial heritage and their enduring sense of community.

We thank those Cape Verdean-Americans who provided the impetus for the Festival program, carried out most of the research in concert with Smithsonian scholars, led the effort to raise funds from foundations, corporations and individuals through benefit dances, auctions and other community events, and joined with the Smithsonian to tell their story to the American public through the national museums.

The Festival can never offer up more than a sample of the rich and complex cultures it seeks to portray. Yet by engaging people in that presentation, those represented as well as visitors, the Festival can enhance the public's understanding of its fellow citizens and neighbors, and help communicate our legacy to future generations. As we look toward 1996, with Festival programs on the American South, on Iowa (for its 150th anniversary) and on the Smithsonian Institution itself (for our 150th), we trust this spirit of cultural dialogue and collaboration will continue to flourish.



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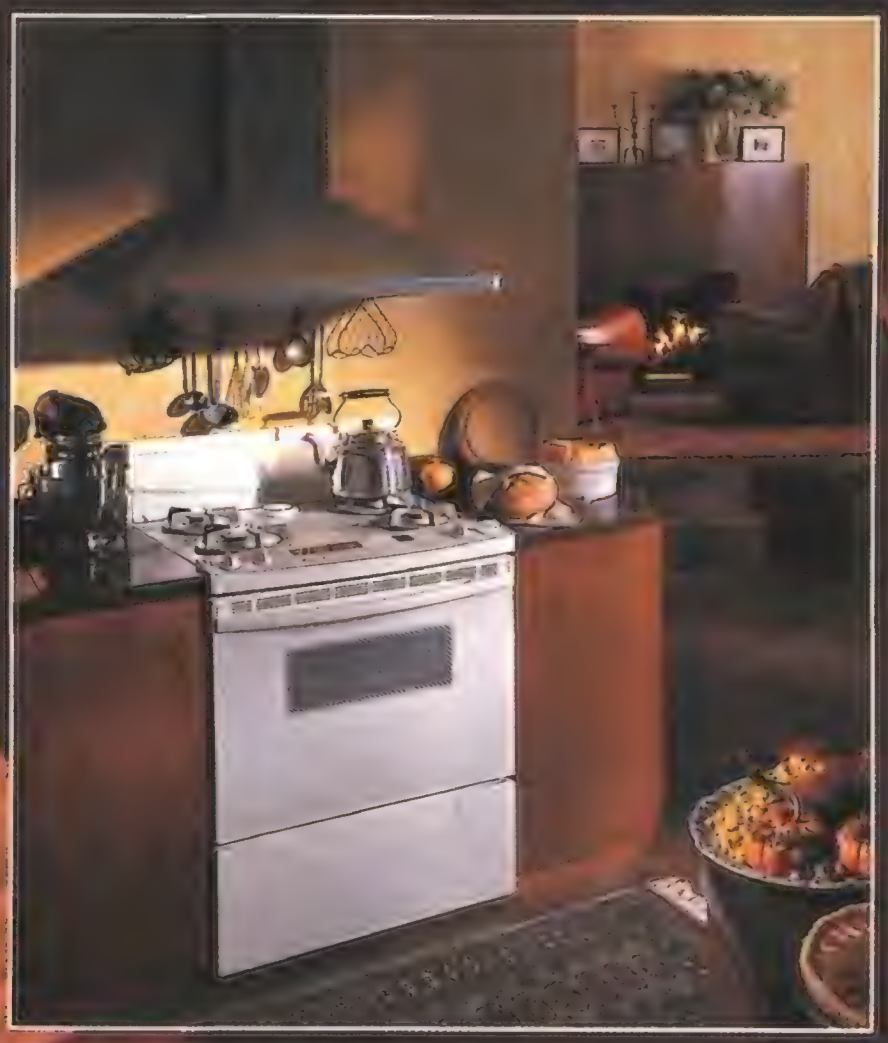

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Letters to the Editor

Twenty-five years of SMITHSONIAN

Dear Sir: What a wonderful blending of articles celebrating the wonders of our Earth with the fascinating variety of thoughtful, hardworking, unusual human beings that inhabit it as I discovered in your April, 25th-anniversary issue. Thanks.
Patricia C. Hosmer
South Russell, Ohio

Dear Sir: Congratulations on your 25th-anniversary number: it is a gem. What you have achieved is unique. Magazines do not automatically burgeon into national treasures. I believe your well-deserved success is due to a dedicated staff and damned hard work. It is not a fluke that yours is a top publication: it is the result of visionary thinking, courage and a preference for quality.
Caroline K. Keck
Cooperstown, New York

Last Page

Dear Sir: Well, you blew it again. You relegated the potentially greatest cover ever to the "Last Page," where you admitted having committed your original sin. Whoever made the decision (please don't tell me it was the same editor!) to put that gaudy cover on your 25th-anniversary issue should have his or her head examined. Perhaps you'll wake up for your 50th year. If so, please send me a copy to "the other side."
Julie Bose
Tucson
The double perpetrator hopes he will have retired by A.D. *2020.* Ed.

South Bronx

Dear Sir: Camilo Vergara's photograph on pages 102-03 illustrates the devastated landscape of the South Bronx in the 1970s and '80s. The skeleton hulk of a burned-out church, however, was a movie set that Paul Sylbert designed for *Wolfen*, a film starring Albert Finney and Gregory Hines. Carpenters, props [properties personnel], other scenic artists and I constructed it in the fall of 1979 out of steel, plywood, plastic bricks and plaster, and then painted it to look like the real thing. The picture below shows the movie crew at work. After shooting the scenes, we struck the set, as we always do, lest we be liable for any injuries incurred.
Eugene M. Powell
Valley Cottage, New York

Lake Missoula Floods

Dear Sir: In 1970, when J Harlen Bretz was 89 and still full of pep, he told me his greatest moment occurred in 1965 during the International Geophysical Year held in Denver. Many earth scientists still could not accept the catastrophe theory, and some had referred to his beloved University of Chicago as "that western trade school."

Some of his most respected disciples arranged a bus tour of the flood route. At the end of the trip in the Washtucna-Kahlotus area, the scientists saw convincing evidence: dry cataracts where floodwaters once flowed, the rerouting of the Palouse River, stream beds where water had never flowed in recorded history, ripple marks on the coulee walls.

"I knew it was all over when I received a telegram of congratulations when the group reached Pullman," Bretz said. "At the very end of the telegram were the words, 'We are all now catastrophists.'"
Archie Satterfield
Edmonds, Washington

Dear Sir: Once in a while, in a parsimonious frame of mind, I consider canceling my subscription to SMITHSONIAN. Then, like a ton of bricks, you hit me with a magnificent article like "The Floods That Carved the West." The great writing by Michael Parfit and the pictures by Ted Wood took SMITHSONIAN back to its roots and recaptured me completely.
David W. Saxton
La Plata, Maryland

Dear Sir: Imagine my amazement upon turning to page 51 and finding J Harlen (Doc) Bretz staring at me just as he had in 1949 when I took the picture. He is loading a pipe from a blue can of Edgeworth, his favorite tobacco, that was

It Can Take Several Lifetimes To Reach A State Of Inner Peace And Tranquillity. Or, It Can Take A Couple Of Weeks.

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resting on the fender of my Concord blue Studebaker. In the background, out of focus, is Mount Rushmore. He and I were traveling through the Black Hills on the way to a field camp in Wyoming run jointly by the University of Montana and the University of Chicago.

He was very proud of the tin hat he was wearing that day, which was given to him during the construction of the Grand Coulee Dam. It was the only hat I ever saw him wear, and it now rests prominently in my office.

Julian R. Goldsmith
Department of Geophysical Sciences
University of Chicago

Dear Sir: The words Bretz used for describing the wonders of the American Northwest ("Let the observer take the wings of the morning to the uttermost parts of the earth, he will nowhere find its likeness") echo Psalm 139:9-10 in the Old Testament's Book of Psalms.

Fred Somkin
Ithaca, New York

SMITHSONIAN *Updates*

Dear Sir: In 1971 the Canadian Broadcasting Company lowered an underwater television camera down "10-X," our 27-inch borehole on Oak Island, to 235 feet, but the pictures from the reel-to-reel tape were difficult to read. Last year we transferred the reel to a VHS tape, which allowed us for the first time to freeze-frame and study specific parts of the film. We can now see several man-made objects such as an 8- to 10-inch-diameter wooden column and what appear to be two chests.

At borehole 10-X we now have a circular shaft, 8 feet in diameter, anchored into bedrock at 181 feet. Our goal is to complete the shaft down to 235 feet.

We will be celebrating the bicentennial of the founding of Oak Island on August 13-19. Lieutenant Governor James J. Kinley of Nova Scotia will unveil a large granite monument to the six people who lost their lives digging on Oak Island.

Daniel C. Blankenship
Oak Island Exploration Company
Mahone Bay, Nova Scotia

Dear Sir: You cropped the images I sent you for your anniversary update of William Shakespeare, eliminating important visual information on the bottom four pictures. Your doing so diminishes the interpretation of my findings in identifying Queen Elizabeth I as the model for the Martin Droeshout engraving, the only picture associated with Shakespeare's writings.

After digitally comparing all the potential Bards with the Droeshout, including Edward de Vere (Earl of Oxford) and Francis Bacon, I found that only George Gower's portrait and other portraits based on his cartoon of Elizabeth I had features that were interchangeable with the engraving. The eyes and shading around the eyes match up, as do the noses. The lines of the noses and the nostrils are contiguous. The mysterious jawline—a second line on the Droeshout engraving—aligns exactly with that of Good Queen Bess. Droeshout preserved the curve of the top of the queen's head but shifted it toward the right and upward, resulting in the "bulbous" forehead on the engraving.

Laurens Schwartz and I wrote a more detailed description of the computer analysis in our 1992 book *The Computer Artist's Handbook* (W.W. Norton).

Lillian Schwartz
Murray Hill, New Jersey

Mask of Shakespeare
© 1992 Lillian Schwartz

Dear Sir: Corps-bashers never recognize that the U.S. Army Corps of Engineers does not study or build anything without direction or approval of the U.S. Congress. Recall that in 1925, then Chief of Engineers Maj. Gen. Harry Taylor testified before Congress that the nine-foot deepening of the upper Mississippi River channel would have adverse environmental impacts such as flooding of wetlands, and that the scheme was unwise. Congress ordered Taylor to carry out the work anyway, which he did, and his prediction proved to be accurate.

Allen W. Hatheway
Rolla, Missouri

Deep Springs College

Dear Sir: In the photograph on page 125, Matt Kwatinetz "puts up with a cat," but he's in jeopardy of putting up with worse. If Matt's next client is an edgy bovine, she could launch a hoof straight ahead and take out Matt's knee. A safer position would be squatting atop a low milking stool with his legs to the rear, preventing crying over something more serious than spilled milk. In my youth I was a maladroit milker; abler ones held the pail between their knees while angling the stream into it. Our cats liked a squirt in the face, which kept them distracted while we did our hands-on work.

Art Darwin
Morganton, North Carolina

Club(house) America

Dear Sir: In the late 1940s while working with the Marshall Plan in Italy, I joined a club that needs no translation: Società per la Complicazione degli Affari Sémplici. Members contributed stories of experiences with bureaucracy that were mimeographed and distributed in a newsletter.

One person reported having needed one government office to complete a "certificate of repairs" that another government office required before the latter would issue a permit to resume operations. The former insisted on having the certificate notarized, but the latter refused it because notarization was not necessary.

Pearson Hunt
Winter Park, Florida

Dear Sir: Bruce Watson failed to mention the Flat Earth Institute of America, which has no connection with the Flat Earth Research Society. The latter gathers data to prove that Earth is not an oblong spheroid; we have broader horizons. We also grant honorary memberships to public figures whose conclusions and positions are unhampered by any recognition of relevant evidence or the exercise of reason. We select many candidates from a rich pool of politicians, press pundits and entertainers who make statements of notable fatuity about public policy. Few accept.

Since 1827 when our Institute was founded by Messrs. Chauvin, Bigot and Pettifog, we have opposed flying machines, vaccinations, water purification, pasteurized milk, universal suffrage, dial telephones, pantyhose, radiophar-

maceuticals and four-wheel brakes. Our lonely struggle to maintain the status quo will continue as long as the sun circumnavigates this earthly disk.
R. Murray Campbell, Executive Director
Cohasset, Massachusetts

Dear Sir: I belong to the 1918 Club, which was started in 1960 and now has more than 5,000 members worldwide. Why 1918? It was the end of the Great War, the flu took over and I was born—October 31, 1918.
Luise K. Iverson
Milwaukee

Dear Sir: Thank you for mentioning my club in your article. Although the Institute of Totally Useless Skills sounds like an organization that should be defunct, it is not. ITUS is alive and well and devoted to teaching humanity skills that have absolutely no value. Everyone, by virtue of being a human being, is entitled to a free membership.

We changed our address but failed to notify the Encyclopedia of Organizations, which was a source for Bruce Watson's article.
Rick Davis, President
Temple, New Hampshire

Cubic foot of air

Dear Sir: The article by David Bodanis was extremely interesting and painfully frightening. After 86 years, I contemplate termination of breathing.
Boyd Von Seggern
Kansas City

Far-out museums

Dear Sir: I have a suggestion for the 8,001st museum in the United States. During the past year our television, radio and newspaper have been saturated with the O. J. Simpson trial. Why not collect all the trial papers and pictures and open the O. J. Sidebar Museum? I am certain no one will object.
The Rev. David M. Paisley
Camarillo, California

Send mail for consideration in this column to Letters Editor, SMITHSONIAN Magazine, 900 Jefferson Drive, MRC 406, Washington, DC 20560, or transmit via e-mail to simag.edmail@ic.si.edu. Both posted mail and e-mail must include your full name, postal mailing address and telephone number.

We hope you'll find time to visit us soon. If you do, be sure to remember your camera.

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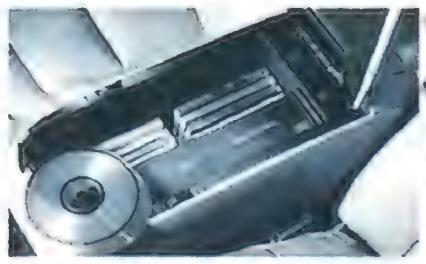

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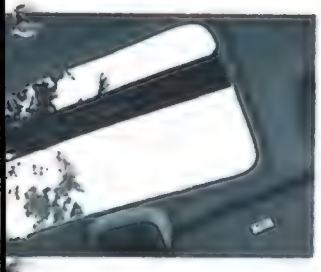

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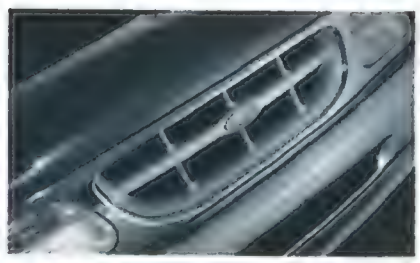

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Around the Mall and Beyond

By Michael Kernan

In 1939 Moritz Schoenberger, a Hungarian Jew living in Vienna, wanted to join his family in America. His ordeal as a refugee aboard the S.S. St. Louis *is told at the National Postal Museum*

"I am very astonished to learn that you have not received my several letters but I hope that meantime you will be in possession of some of these. . . ."

I love letters. They may not tell you much about a historical event, but they can give you a feel for people caught up in that event, a sense of what it was like to be there, and most important, an insight into the people themselves and how they responded to what was going on.

This letter, written in laborious English on May 5, 1942, the last lines cramped as he tried to get it all down, was Moritz Schoenberger's attempt to cheer up his wife and daughter, safe in New York while he labored in a work camp in Occupied France.

Schoenberger had already experienced a bitter disappointment when, three years earlier on May 15, 1939, he sailed from Hamburg, Germany, aboard the S.S. *St. Louis*, one of 936 Jewish refugees bound for Havana, Cuba. The ever-tightening vise of Nazi anti-Semitic laws had forced Schoenberger, a Hungarian Jew living in Vienna, to abandon his work as a vendor of window decorations. Now, desperate to escape the Nazi terror, he was trying to join his wife, Helene, and daughter, Bianka, who had preceded him to America.

Schoenberger's story—and the chronicle of the *St. Louis*' infamous voyage—are featured through February in an exhibit at the Smithsonian's National Postal Museum (SMITHSONIAN, August 1993). Ever since the museum opened in the old granite post office building near Washington's Union Station, I have been keeping an eye on its little gem of an ongoing show titled "A Family's History." The first display contained letters of the Madden family of Virginia, from 1790 to the present.

The Schoenberger exhibit, which offers a glimpse of a pretty much forgotten episode that shamed America, and of one family's struggle to cope with its aftereffects, features documents and images on loan from the United States Holocaust Memorial Museum.

In the 1930s, particularly after the repressive Nuremburg Laws of 1935, Germany's Jews by the thousands naturally tried to flee the country. The United States had an annual immigration quota of 25,957 for Germany, but in 1939 there were six times that many visa applications from Germany and Czechoslovakia. A bill to allow 20,000 extra German Jewish children into the country was easily defeated in Congress. A magazine poll claimed that 83 percent of the American public was opposed to changes in the immigration policy.

Most of the refugees on the *St. Louis* had already applied for American visas but planned to live in Cuba while waiting their turn. What they didn't know was that ten days before they sailed, the

Among the documents found by Schoenberger's family in the mid-1980s was this postcard of the *St. Louis* and a self-portrait (above) painted while he was imprisoned. More than 600 of the ship's refugee passengers later died in concentration camps.

Cuban president, Laredo Bru, reacting to rising anti-Semitism in his country, changed the immigration rules: each refugee would now be required to present written endorsements from Cuban officials and $500 in cash—for a total of nearly a half-million dollars—plus a bond of $150,000 that was later upped to $1 million.

When, however, an international committee for political refugees urged the steamship company not to send the ship to Cuba because of these new entry requirements, the director of Hamburg-American's Cuban office gave his "personal guarantee" that there would be no problem since the refugees' documents were all dated prior to May 5.

The guarantee proved worthless.

The ship steamed into Havana Harbor on May 27. Only 22 of the 936 passengers were allowed to disembark. Police patrolled the docks to keep back the crowd of friends and family that gathered. Relatives rowed out in boats, surrounding the vessel. Spotlights were trained on the water to be sure no one jumped off in the night. Two passengers attempted suicide, one succeeded. For five days the people in the rowboats held shouted conversations with their relatives, who pressed against the rails from the deck high above.

For most of them, it was to be their last sight of one another.

Aboard the ship, one 9-year-old girl saw her father waving from one of the boats. While the ship remained at anchor, dockside vendors ran a regular carnival, renting binoculars, selling food, and entertaining the refugees with music and performing monkeys.

When at last the *St. Louis* did start to move away from shore, the girl felt the lurch and saw her mother start to cry. Going up on deck, she found most of the passengers in tears, some of them moaning in lamentation at what was happening: they were being sent back to Nazi Germany. A suicide watch had to be set up on board.

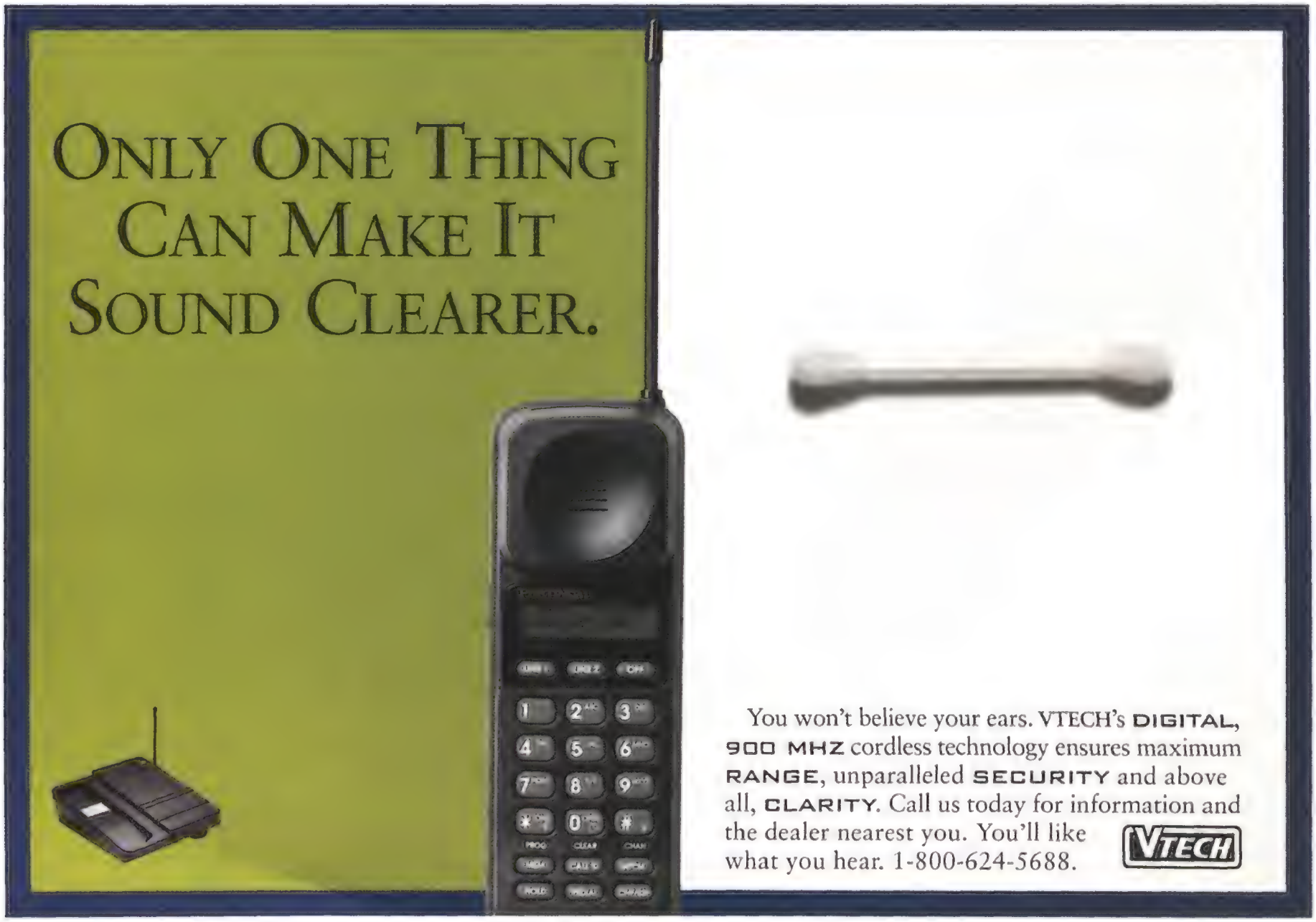
After the *St. Louis* sailed from Havana on June 2, Captain Gustav Schroeder defied the Hamburg-American Line officials and delayed his return as long as he could, weaving slowly up the coast of Florida in a meandering pattern, while the passengers' committee frantically wired appeals to President Roosevelt and others in America. The exhibit includes a draft of a cable they sent for help. More than 700 of the refugees were on the American immigration waiting list, and the exhibit makes it clear that they could just as well have waited in this country as in any other.

There was no response. The U.S. Coast Guard followed the *St. Louis* to prevent anyone from jumping off and swimming to shore. The lights of Miami Beach could be seen a mile or so away.

On June 6 the ship finally headed back to Europe. The passengers were in such a state of despair that Captain Schroeder feared a mutiny or mass suicides. Meanwhile, Jewish groups all over the world desperately tried to get other nations to accept the refugees.

At the last minute, four countries agreed to take them: Belgium accepted 214, including Moritz Schoenberger; the rest were divided among the Netherlands, France and England. Germany soon conquered three of the four nations, and it's estimated that more than 600 of the refugees eventually died in Nazi concentration camps.

What became of Schoenberger? He was sent first to Camp de Gurs in Vichy France and later to Camp des Milles. A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commercial artist, he took up painting; the exhibit contains a reproduction of his watercolor self-portrait.

All through the war Helene Schoenberger worked to free her husband. By November 1941 she got word from the State Department that Moritz was approved for an immigration visa. Another 11 months of red tape and official heel-dragging followed before he was released by the Vichy authorities.

Soon after arrival in Long Island, he changed his name to Morris and opened a sign studio. He applied for U.S. citizenship in December 1945 and, in the following year, at last became an American citizen.

To give you an idea of the difficulties he and his wife faced in communicating with each other during a world war, the exhibit features an envelope addressed to Helene Schoenberger in Jackson Heights, Long Island, mailed in Marseilles, France, on April 30, 1942. A Vichy censor opened the letter, taped it shut and stamped it, sending it on through Spain to Lisbon, Portugal, to be flown to the Azores by Pan American Clipper and then to Hamilton, Bermuda, where a British censor reopened it and resealed it. Finally it was allowed to proceed to New York.

Schoenberger rarely talked about his experience. He was forever looking ahead, even from the prison camps, which he regarded "with a good deal of humor and fatalism. That is our good luck having such a nature . . . we hope, that the time for our reuniting must be reached gives me the necessary power to endure."

To his daughter he wrote, "Keep our courage and keep first of all further brave, take the life as it is and endeavor yourself to enjoy your young life as well as the circumstances permit."

Schoenberger died on October 31, 1956; he was 52.

It was his granddaughter Julie Klein who discovered the letters and other documents in a box in a closet at her mother's house. She had heard only a few details of her grandfather's battle to be reunited with his family.

"I was only 3 when my grandfather died," Klein recalled last September after the exhibit opened. "The subject was taboo in the family." Her parents didn't let her study German or buy German products, a not unusual reaction by victims of the Nazis, and when she opened the box of mementos—a diary, passports, tickets, telegrams and snapshots—she couldn't understand what most of it said.

Because of Schoenberger's lifelong habit of looking on the bright side, there was little in the way of hardship in the letters. He tells Helene, "I do not know any news, what would be interesting enough for you, although there are some internal matters which are interesting for our further fate." Explaining that everybody under 55 had to work "somewhat" in a labor detachment, whether "in a factory or at the forestry or at the agricultry"—and that if they didn't volunteer for such jobs they would be moved to another camp for quarry labor or road construction—he then adds, "I am content having my occupation which prevents me for such involuntary works."

"But I do not want to trouble you with our internal life," writes Moritz Schoenberger. "I still remain more than ever with good hope and with an imperturbable belief to bring our disaster to a happy end."

He doesn't have to spell out in detail the life in a Nazi work camp. The message we can take home from these quietly optimistic letters is that whatever the circumstances, you must never give up, never quit being who you are.

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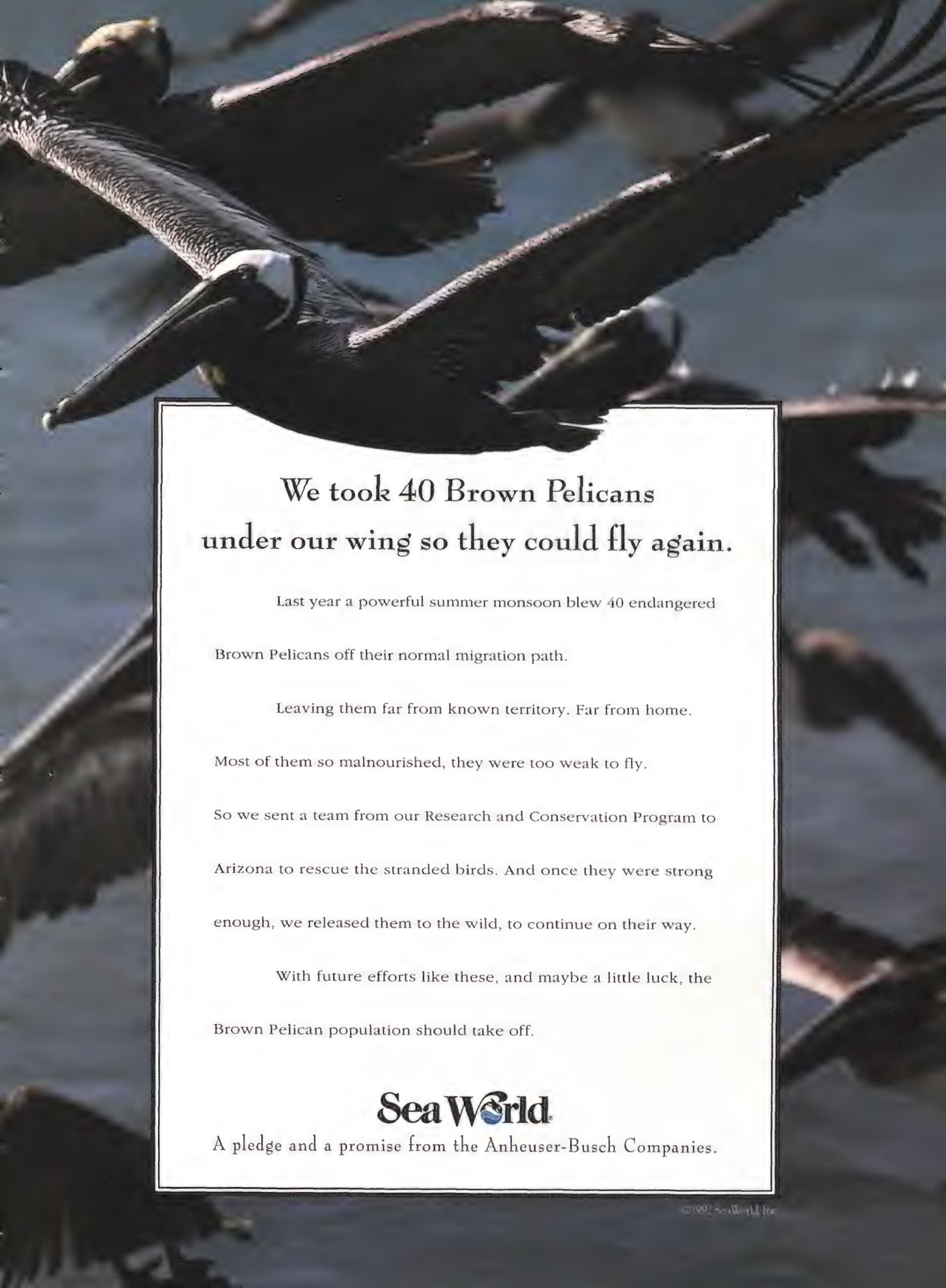

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The Object at Hand

By Adele Conover

How a great snake, attended by alarums and excursions, made it from an Asian jungle to the National Zoo and so, eventually, to its present berth in a Smithsonian museum

A huge, female reticulated python "slithers" high on the wall on the second floor of the Smithsonian's National Museum of Natural History. It is just above a diorama of fellow giant reptiles—a cheetah-size Komodo dragon, a turtle as big as an umbrella, and a king cobra, the longest species of venomous snake in the world.

When the python died of natural causes at the National Zoo in 1944, it weighed 305 pounds and was nearly 25 feet long. In its native habitat it must have been even longer, as part of its prehensile tail was missing, but it would have had to grow several feet more to rival the longest snake ever known to science, another *Python reticulatus*, which measured in at nearly 33 feet.

This particular python's origins are obscure. One line of evidence suggests it came from India, but the snake could have been caught in Burma, Malaya or the Philippines. Perhaps it came to the Zoo in 1937, along with some 2,000 animals that then director William Mann bagged during a joint Smithsonian-National Geographic expedition to Southeast Asia. If so, being snatched from the wild may have saved the python from becoming rations for guerrilla fighters in World War II, led by the eccentric British colonel Charles Wingate, who snacked on reticulated pythons as his men slogged through the Burmese jungles.

In any case, the object at hand spent the war years in the National Zoo. Despite nearly 100 recurved teeth deployed in six rows, its bite wasn't venomous—which prevented its exile to the Midwest in 1942. That was when the Zoo's venomous snakes—in the name of wartime security—were shipped to the Chicago zoo and elsewhere for safekeeping. Authorities feared that if Washington, D.C. were bombed, venomous snakes might escape, wreaking havoc among the nation's wartime leaders. Apparently they didn't consider that a monster python, on the lam in Rock Creek Park or Georgetown, "could easily overpower a man and, if the latter had narrow shoulders, could swallow him," as famed herpetologist Raymond L. Ditmars pointed out.

According to celebrated big game hunter C.J.P. Ionides, pythons "bite like dogs" to grab their prey. Once caught by the snake's lightning strike, a victim dies of suffocation or hemorrhage as the snake constricts its coils around it. Bones are rarely broken; constriction simply prevents breathing and bursts blood vessels. The size of a meal does not faze these large snakes. The largest pythons frequently down medium-sized antelope, small boars, pigs and dogs, and cats small and large (including, in 1897, one of the king of Siam's kitties, complete with bell). One snake on record was found full of leopard. Another python tried—unsuccessfully—to swallow an adult elephant. Almost any creature weighing less than 150 pounds is fair game—horns, armor and spines notwithstanding. Such sharp fare occasionally causes so much discomfort that the snake coughs it up. As herpetologist Clifford Pope once observed: "Perhaps it is only Man himself who rivals the giant snakes in richness of diet."

A python's dinner may include Man himself (or herself), although reliable reports are few. Felix Kopstein, a Dutch physician and student of East Indian reptiles, told of a 14-year-old boy who disappeared on Salebabu Island in Indonesia. When the search party found a 17-foot python where the boy was last seen, the lump in the snake told the story. Dissection corroborated their suspicions. About 1930 a Burmese jewelry salesman was ingested by a snake. Only his slippers were left behind.

There's no record that NMNH's python swallowed anyone in its early years. Nor is there a record of how it was caught. But the experiences and techniques of 1930s animal collector Frank ("Bring 'em back alive") Buck shed some light on one python encounter. In his spirited report "Snake in the Grass" (*Collier's* magazine, January 1936), Buck tells how he and his field crew, Ahmed, Awi and Ali, were out in the Malayan jungle three miles from camp. Sudden-

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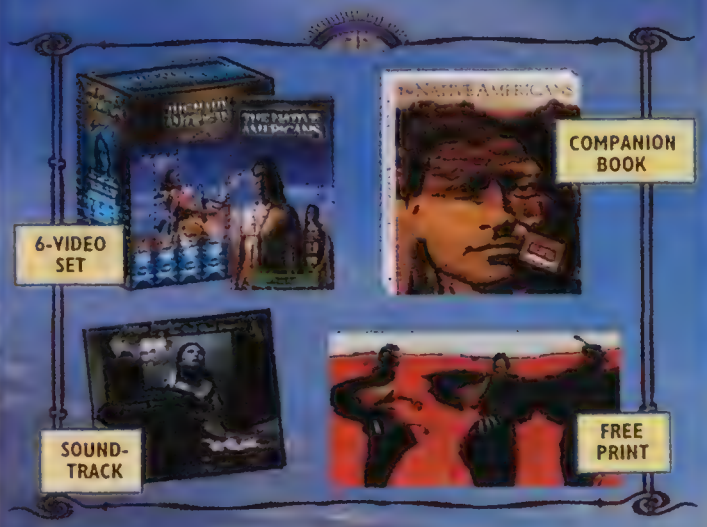

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To prepare python, Edgar Laybourne replicated by hand all of its intricate markings on a shell of clear, hard plastic molded in a cast of the snake's body.

ly, Buck wrote, "I saw Ali in the coils of a big python! It had a firm grip with its huge mouth on one bare leg, a coil around the other leg, and another around Ali's thin brown body!"

A fantastic struggle took place. "We worked like demons at that center coil that was around Ali's body," Buck wrote. But by the time they loosened the coil the snake had its tail wrapped around the boy's shoulders. Buck had Ahmed and Awi lie flat on the main part of the snake while he tried unwrapping the tail. "'It's all right, Ali!'" Buck said. "'We'll get you free!'" At last they had, except for the grip of the snake's jaws on Ali's leg. "With my free hand I got out my revolver," Buck wrote. "I could have killed the python now . . . but with the boy in no danger I hated to kill the snake. After all, it had done no more than any creature defending itself."

Eventually they got the monstrous, squirming reptile on the ground but had nothing to tie it up with. Buck noticed some rattan vines, and he quickly lashed three thicknesses of vine, tying the snake's neck against its body "a few feet down," and added loops of rattan until, as he put it, "Mr. Python looked for all the world like a coiled-up fire hose." Slipping a pole through the coils, the four python hunters marched back to camp with the "abashed" snake on their shoulders.

One hopes that the spectacular creature at NMNH never suffered such indignity. In an interview, Watson Mondell Perrygo, a taxidermist and collec-

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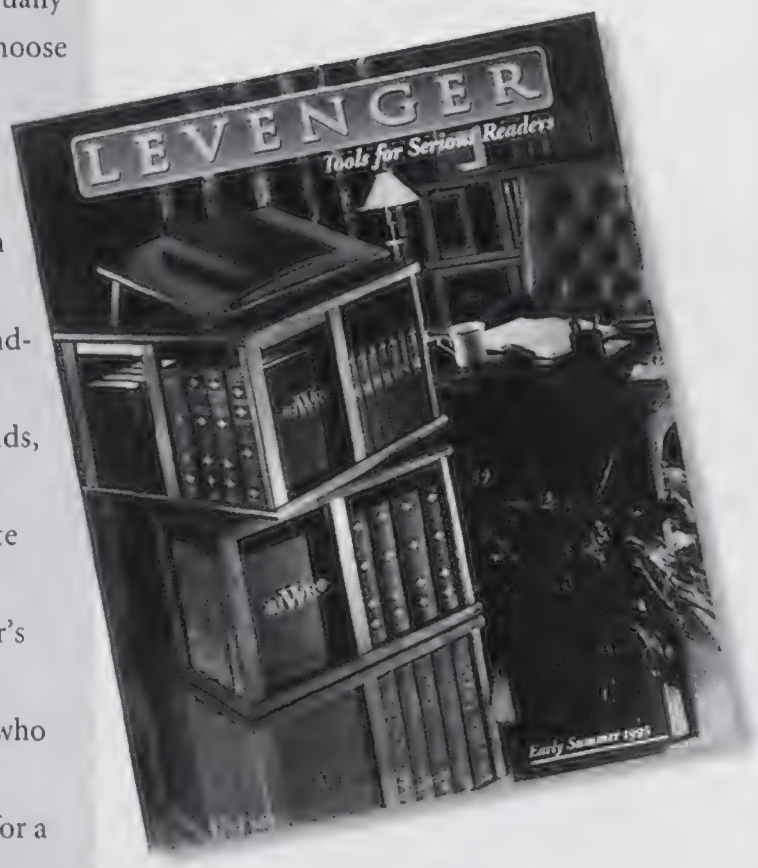

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tor at NMNH from 1925 to 1965, described what may have been this python's earliest visit to the museum. "I was out to the Zoo one time," Perrygo reported, "in real cold, bitter weather. Bill Blackburne, the head keeper, said, 'I've got a big snake. . . . Will you take it down [to the museum]?' It was dead, you know. Piled up in a great big bag." Perrygo was heading toward NMNH when his heater began to warm up the car. Suddenly he heard a *shoooh*. "Oh, my lord," he thought, "there's not enough antifreeze; the radiator's frozen." Jumping out, he checked the radiator. No problem. So he went around and opened the car door, "and there was this snake coming out of the bag . . . and he was live, and I mean live, hissing as loud as he could hiss!"

Quickly turning the heater off, he opened both doors, waited until the snake got chilled, and drove on with both windows down.

After its death at the Zoo in 1944, the python took a journey to immortality in a museum display. In the 1940s the taxidermy of snakes to look lifelike was a new undertaking. First, a plaster cast was made of its entire body. After the body was removed, the cast was painted on the inside with a thick layer of clear cellulose acetate, which dried into a hard "skin" shell in the exact dimensions of the snake. Once the acetate layer had hardened in the cast, each of the python's scales had to be hand-painted backward on the skin's inner surface. The laborious task was performed by the distinguished taxidermist Edgar G. Laybourne (opposite). Says his widow, NMNH zoologist Roxie Laybourne, "E.G. used a dental mirror to paint every scale in reverse."

The serpent was installed in the Malayan jungle diorama. Today the museum has 40,000 snakes in its collection, ranging from the cigarette-length worm snake to the object at hand, although only 40 specimens are on display. Many people are fascinated by snakes. But NMNH guards report that others, often including little girls, it would appear, avoid the herpetology displays or are actively hostile. Few have such strong feelings on the subject, however, as an intruder who showed up in the museum on April 4, 1969.

He was a small man, carrying a paper sack. Reaching the Hall of Reptiles, he put down the sack, took out a hatchet and began smashing holes in the glass front of the Malayan exhibit, which included the reticulated python and a king cobra rearing, with its hood spread. Having broken through the glass, the man took a butcher knife out of the sack and began decapitating the snakes. All were damaged, but other reptiles escaped injury—except for a Komodo dragon, which, perhaps because it had a snakelike forked tongue, took a couple of blows before, presumably, the man saw that it was not a snake. Before he could escape, the man was caught and taken to Captain Wilfred L'Abbe, chief of the museum's guard force. Something about him was familiar to L'Abbe. Checking back records, he found a report for January 1968 on a visitor who had brought a long pole into the museum. When questioned by a guard, the man explained that a large snake in one of the exhibit halls had stolen $20,000 from him in a poker game; he intended to get even by killing it.

After many months and $5,000, the big python was made as lifelike as ever. But the cobra never played poker again.

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ROYAL VIKING

Smithsonian Highlights

Photographer Cindy Sherman's *Untitled Film Still #32* (1979) is on view through June 25 in Hirshhorn "Directions" show. Series portrays artist in various guises.

Planning a Smithsonian Visit?

Receive a special free Associates' Planning Packet. Write Smithsonian Information, Smithsonian Institution, Washington, D.C. 20560, or call (202) 357-2700, daily, 9 A.M.- 4 P.M.; for callers with communication impairments, TTY: (202) 357-1729. *Note:* Parking near Smithsonian museums is limited. The convenient Metrorail subway system has parking available at some stations (details in packet).

Begin your visit at the Smithsonian Information Center's Associates' Reception Desk—open 9 A.M. - 4 P.M. daily—in the Castle.

Court Dining Room

Located in the National Museum of Natural History, the Court dining room offers buffet service daily, 11 A.M.- 3 P.M.

Extended Summer Hours

Starting Monday, June 5, through Labor Day, Monday, September 4, the National Museum of American History, the National Museum of Natural History and the National Air and Space Museum will operate on extended hours daily, 10 A.M.- 6:30 P.M. Hours at the National Zoo are 9 A.M.- 4:30 P.M. daily for buildings (unless otherwise posted), and 8 A.M.- 8 P.M. for grounds, through September 15. Other Smithsonian museums are generally open 10 A.M.- 5:30 P.M. daily.

Festival of American Folklife

The 29th annual Smithsonian Festival of American Folklife will be held on the Mall, June 23-27 and June 30-July 4, from 11 A.M. to 5:30 P.M., with a dance party from 5:30 to 7 P.M. and a concert from 7 to 9 P.M., daily. Cosponsored by the National Park Service, the Festival will feature Native American singers, dancers and musicians from across North America; Russian singers; Czech folkloric ensembles and community bands; and performers, craft artists, cooks and storytellers from Cape Verde.

Special June Exhibits, Events

National Portrait Gallery

The Passionate Observer: Photographs by Carl Van Vechten (June 16-August 13) In 30 years behind the camera, Van Vechten (1880-1964) produced an impressive catalog of the creative figures of his time. See *Highlights Continued*, page 32.

In Pursuit of the Butterfly: Portraits of James McNeill Whistler (through August 13) Exhibition traces the evolution of Whistler's self-constructed image as a popular icon in Victorian England.

Majestic in His Wrath: The Life of Frederick Douglass (through November 19) Exhibit presents the story of Douglass' life and legacy through paintings, prints, photographs and other memorabilia.

From Truman to Clinton: Presidents on Time (through January 1, 1996) Portraits drawn from the gallery's collection of original *Time* magazine cover art.

National Museum of American Art

Secrets of the Dark Chamber: The Art of the American Daguerreotype (June 30-October 29) More than 150 images document early photography's contribution to American art and culture.

Recent Acquisitions on Paper (June 2-October 29) Works acquired by the museum from 1991 to 1994 by such artists as Arthur B. Dove and Grant Wood.

The White House Collection of American Crafts (through September 4) Unique collection of contemporary crafts was formed in 1993 in honor of the Year of American Craft. See page 52.

Will Barnet: An Intimate View from the Museum's Collection (through July 4) Small installation presents key paintings, prints and drawings representing six decades of the artist's work.

Renwick Gallery

Uncommon Beauty in Common Objects: The Legacy of African American Craft Art (through June 18) Exhibition features a variety of works by both recognized and emerging artists.

Marriage in Form: Kay Sekimachi and Bob Stocksdale (through June 18) Baskets and woven wall hangings by Sekimachi, turned wood bowls by Stocksdale.

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National Air and Space Museum
Flight Time Barbie: Dolls from the Popular Culture Collection of the National Air and Space Museum (June 9-September 4) Exhibit traces Barbie's evolution from American Airlines stewardess in 1964 to Air Force Thunderbird in 1994.
Building the Arsenal of Democracy: World War II Photographs from the National Air and Space Museum Archives (through October 2) Images depict the supportive efforts of those on the home front.
Legend, Memory and the Great War in the Air Permanent exhibition examines the reality of aviation in World War I.
Universe of Illusions (runs indefinitely) Einstein Planetarium show takes a look at some of the mysteries in the history of space exploration.
Yellowstone (8 P.M. daily, starting June 16) Imax film portrays the history, geology and wildlife of the park.

National Museum of Natural History
The Royal Tombs of Sipan (June 2-September 4) One of the most significant archaeological finds in the Americas helps unlock the mysteries of the Pre-Columbian Moche civilization of Peru—tomb reconstructions, artifacts.
Ocean Planet (through January 1, 1996) Major exhibition looks at the causes and consequences of environmental threats to the world's oceans: state-of-the-art computer animation, dioramas.
Gem and Mineral Hall Gallery is closed for renovation until December 1996. The famous Hope Diamond is on view on the second floor of the Rotunda.
Giant Squids Permanent exhibit showcases the world's largest invertebrates.

National Zoological Park
What's New at the Zoo? Look for such additions as a female cheetah cub named Jomu (one of the world's first cheetahs produced by artificial insemination) and a pair of nocturnal arboreal acrobats known as African bush babies.
Amazonia Permanent installation re-creates a microcosm of the world's largest rain forest and river habitat.

National Museum of American History
Women War Workers (opens June 6) Single-showcase display examines work opened up to women after the bombing of Pearl Harbor in 1941.
Science and the Artist's Book (through May 28, 1996) Exhibition, cosponsored by the Smithsonian Institution Libraries and the Washington Project for the Arts, explores links between scientific and artistic creativity. See page 108.
Personal Legacy: The Healing of a Nation (runs indefinitely) Exhibit commemorating the tenth anniversary of the Vietnam Veterans Memorial looks at objects and documents left at The Wall.
Science in American Life Permanent exhibition tracks advances and discoveries in science over the past 125 years and features a hands-on science center.
First Ladies: Political Role and Public Image Permanent exhibit examines the various roles of our nation's First Ladies and incorporates the Smithsonian's historic gown collection, including Hillary Clinton's recently donated gown.
The Ceremonial Court Permanent installation re-creates White House spaces from 1902 to the present.

National Postal Museum
Located next to Union Station on Capitol Hill, the new museum presents exhibitions tracing the history of the nation's mail service.
Maps on Stamps (June 2-October 1996) More than 100 U.S. and foreign stamps feature aspects of world geography.
Unwelcome: Moritz Schoenberger and the S.S. St. Louis (through February 1996) Memorabilia of a Holocaust survivor who traveled aboard the S.S. *St. Louis* with Jewish refugees in 1939. See *Around the Mall*, page 18.

Twilight (detail) by Kimberly Camp is in Renwick's African-American craft exhibit.

Freer Gallery of Art
Whistler & Japan (through January 1, 1996) Exhibition of 31 paintings, drawings and prints executed by James McNeill Whistler during the 1860s and '70s and known as his "Japanese pictures."
On the River (through January 1, 1996) Hanging scrolls, panels, handscrolls, album leaves and fans, dating from the 13th century to the 19th, illustrate everyday life along a river in China.
Luxury Arts of the Silk Route Empires (runs indefinitely) Adjoining galleries showcase objects from the Freer and Sackler collections.

Arthur M. Sackler Gallery
A Basketmaker in Rural Japan (through July 23) Woven bamboo backpacks, fishing creels and storage baskets by Japanese basketmaker Hiroshima Kazuo.
Paintings from Shiraz (through August 27) Bound manuscripts and individual paintings illustrate the arts of the Persian book created in Shiraz during the 14th-16th centuries.
Sculpture of South and Southeast Asia (runs indefinitely) Works from Cambodia, India, Pakistan and Tibet.
The Arts of China (runs indefinitely) Some 200 objects span 6,000 years.

National Museum of African Art
Ancient Nubia: Egypt's Rival in Africa (through September 4) More than 300 objects trace the 3,500-year history of Nubia from circa 3100 B.C. to A.D. 400.
Images of Power and Identity Permanent exhibition features 100 masterworks from the collection.
The Art of the Personal Object Permanent exhibit looks at the forms and functions of utilitarian objects from Africa.
Royal Benin Art in the Collection of the National Museum of African Art (closed for renovation until July 26) Works from the 15th century to the 19th.

Hirshhorn Museum & Sculpture Garden
Sean Scully: Twenty Years, 1976-1995 (June 14-September 10) Touring retrospective features the rich abstract imagery of the Irish-born contemporary American artist.
The Collection Reviewed: Thomas Eakins' Portrait of Frank Hamilton Cushing (June 30-January 7, 1996) Exhibit examines Eakins' 1895 portrait of Cushing, a Smithsonian ethnologist who had lived with the Zuni Indians in the Southwest.
Directions—Cindy Sherman: Film Stills (through June 25) Series of 69 photographs from the late 1970s casts artist

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(From top) 1. *Oil lamp*, 100BC, 3". $39.00 ea. -2. *Bottle*, 100 BC, 4". $49.00ea. -3. *Amber & Silver necklace*, AD. 1880. $145.00 ea. -4. *Mother goddess*, 300BC, 7". $169.00 ea. -5. *Lapis necklace*, 3000 BC. $295.00 ea -6. *Israel stone hand axe*, 6000 BC, 2". $45.00 ea. -7. *Greek silver drachm*, 200BC. $45.00 ea. -8. *Glass bottle*, 50 BC, 4". $195.00 ea. -9. *Bronze rings*, 100BC. $65.00 ea. -10. *Bronze animals*, 800BC, 2". $95.00 ea. -11. *Hittite idol*, 2000 BC, 5". $195.00 ea. -12. *Sumerian necklace*, 2000 BC. $49.00 ea. -13. *Arrowheads*, 100BC. $49.00 ea. -14. *Egyptian necklace*, 600 BC. $69.00 ea. -15. *Phoenician flask*, 300 BC, 5". $149.00 ea. -16. *Bronze bracelet* 100 BC, 3" diam. $45.00 ea. -17. *Egyptian ushabti, w/hieroglyphics*, 600 BC, 4". $149.00 ea. -18. *Jug*, 3100 BC. $95.00 ea. -19. *Bible Widow's Mite coin*, 103-37 BC. $20.00 ea. -20. *Silver cross*, AD. 500, 3". $195.00 ea. -21. *Sumerian shell money*, 3000BC. $14.00 ea. -22. *Silver rings w/stone inlays*, 1700's. $49.00 ea. -23. *Oil lamp w/cross*, AD. 600, 3". $49.00 ea.

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in various "roles," suggesting stills from Hitchcock-style B-movies.

Arts and Industries Building
The Harmon and Harriet Kelley Collection of African American Art (through July 30) Exhibition of more than 120 works—19th- and 20th-century paintings and prints—offers a kaleidoscope of black life and cultural history. Show is presented by the National African American Museum Project.

Discovery Theater
Aesop's Fables (through June 10) *By the Light of the Silvery Moon* (June 20-24) *Scarves & Stripes Forever* (June 27-July 8) Live theater for young audiences. For information, showtimes, ticket prices and reservations, call (202) 357-1500 (voice or TTY).

Anacostia Museum
Anacostia: Not the Same Old Story (June 17-August 27) Exhibition researched by the students of the Lucy Ellen Moten Elementary School, a D.C. public school, results from a unique educational partnership with the museum. Show includes student art, photographs, poems, stories and interviews.
Black Mosaic: Community, Race and Ethnicity Among Black Immigrants in Washington, D.C. (through August 31) Oral histories, art, photographs, other materials, reveal cultural diversity.

Heye Center, National Museum of the American Indian (New York)
Creation's Journey: Masterworks of Native American Identity and Belief (runs indefinitely) First of three inaugural exhibitions features 165 objects representing tribal groups from North, Central and South America.
All Roads Are Good: Native Voices on Life and Culture (runs indefinitely) Celebrating the indigenous peoples of the Western Hemisphere, show includes 300 objects, from Ojibwa bandolier bags to Kwakiutl wood carvings.

Cooper-Hewitt, National Design Museum (New York)
Field For Dreams: An 18th-Century Bedcover (June 6-September 24) Embroidered coverlet, circa 1730, was likely made to celebrate a marriage. Motifs reveal multicultural design influences.
Kitsch to Corbusier: Wallpaper from the 1950s (through August 27) Wallcoverings reflect the postwar interest in modern art, European travel, teen culture, the burgeoning suburbs and technology. Designers include such artists as Le Corbusier and Henri Matisse.
Body Language: Jewelry and Accessories at the National Design Museum (through September 3) Exhibition explores the expressive nature of jewelry.

Air Force Thunderbirds Barbie and Ken (1994) are at NASM starting June 9.

Archives of American Art
(1285 Avenue of the Americas, New York)
Giorgio Cavallon (through June 30) Sketchbooks, diaries, travel logs, photographs and personal correspondence of the Abstract Expressionist painter.

Exhibition Catalogs

Catalogs available currently include:
The White House Collection of American Crafts ($35/$24.95 paper)
Royal Tombs of Sipan ($45/$29.95 paper)
Tombas Reales de Sipan ($45/$24.95 paper)
Ancient Nubia: Egypt's Rival in America ($16.95 paper)
The Harmon and Harriet Kelley Collection of African American Art ($19.95 paper)
Ocean Planet ($39.95/$19.95 paper)
In Pursuit of the Butterfly: Portraits of James McNeill Whistler ($19.95 paper)
Creation's Journey: Native American Identity and Belief ($45/$29.95 paper)
To order, send check or money order to Smithsonian Museum Shops, P.O. Box 1140, Newington, Virginia 22122. Include 15 percent of purchase to cover postage, handling (minimum, $4.50).

Office of Elementary and Secondary Education

The Office of Elementary and Secondary Education (OESE) offers a variety of programs, publications and services for teachers of pre-K through grade 12 nationwide. Its 1995-96 *Resource Guide for Teachers* provides information on more than 500 educational publications and products available from the Smithsonian. For information or a copy of the guide, write: OESE, Smithsonian Institution, Arts & Industries Building 1163, MRC 402, Washington, D.C. 20560. One copy is available free of charge. Additional copies are $5 each.

Smithsonian on the Air

Smithsonian Presents Invention Series of half-hour television programs explores the spirit of innovation behind invention. Wednesdays at 9 P.M., ET, on the Discovery Channel. Check local cable guide. To obtain a free listing of Smithsonian home video titles, write: Office of Telecommunications, Smithsonian Institution, American History Building, MRC 645, Washington, D.C. 20560.

The Smithsonian Associates, Resident Program

To become a member, or for fee and ticket information, call (202) 357-3030. June events include:

Treasures from the Royal Tombs of Sipan: The Magnificent Moche of Ancient Peru (June 3 and 4) Seminar complements NMNH exhibition.

Ancient Nubia: Egypt's Rival in Africa (June 9 and 10) Seminar held in conjunction with NMAfA exhibit.

Chinese Kunqu Opera Theater (June 16; 7 P.M.) Performance of the traditional Chinese musical drama Kunqu.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here are some June exhibits:

• Juneau, Alaska (June 3-September 24) *The Tongass: Alaska's Magnificent Rain Forest*, Alaska State Museum.

• Scranton, Pennsylvania (June 10-July 23) *Major League/Minor League: America's Baseball Stadiums by Jim Dow*, Everhart Museum.

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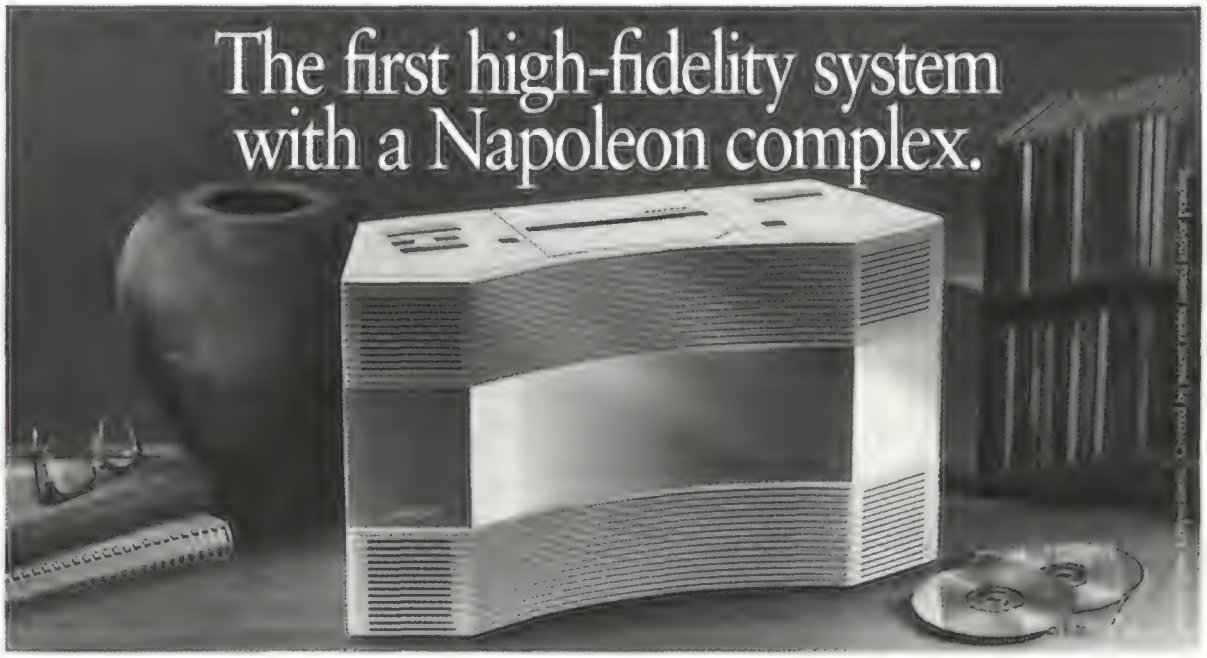

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Highlights Continued

The passionate eye of Carl Van Vechten

Carl Van Vechten (1880-1964), writer, artist and bon vivant, dedicated the last 30 years of his life to producing an extraordinary visual record of the preeminent creative talents of his time. As a journalist and novelist in Paris and New York, he was part of the international modernist movement. As a proponent of African-American culture, he became known as "white America's guide to Harlem." His circle of friends included such luminaries as Eugene O'Neill, George Gershwin and Paul Robeson. In 1932 he began to focus his passion for life, art and celebrities on creating a singular chronicle of his era—all told, more than 15,000 photographs, most of them portraits. Some 70 of these images can be seen at the National Portrait Gallery in an exhibition organized from the Hallmark Photographic Collection by its curator Keith F. Davis."The Passionate Observer: Photographs by Carl Van Vechten," will be on view June 16 through August 13.
Diane M. Bolz

A sense of seduction and mystery emanates from image (1932) of noted actress Anna May Wong coolly sipping champagne.

Early in his photographic pursuits, Van Vechten captured the haunting intensity of Mexican painter Frida Kahlo (1932).

Portrait of Bill (Bojangles) Robinson, the celebrated dancer and Broadway musical and film star, was created in 1933.

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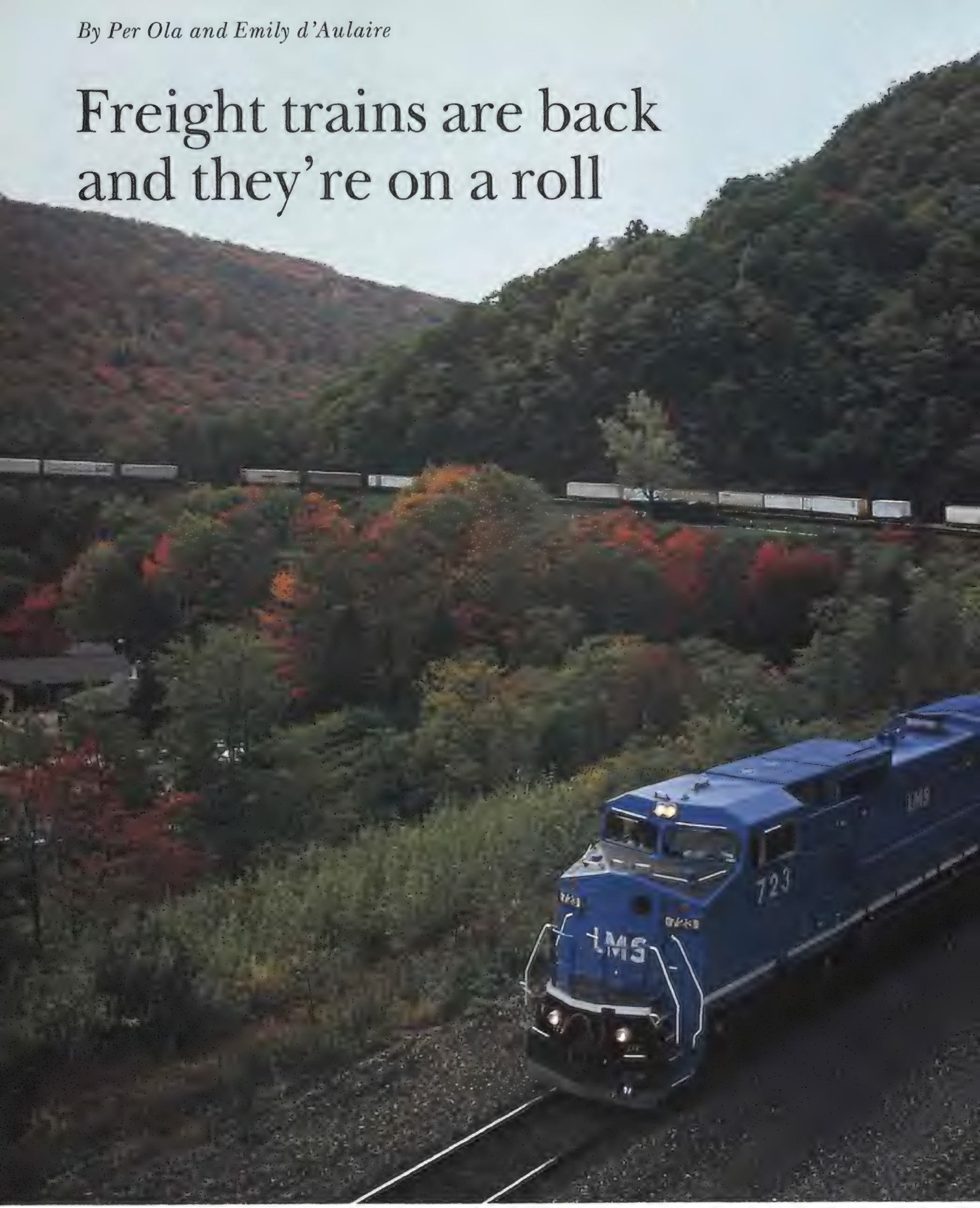

Photographs by Randall Hyman

No. 723 rounds world-famous Horseshoe Curve, built in 1854 as a shortcut through the Allegheny Mountains.

The site is a mecca for rail buffs who tour the visitors center (left) and spend hours watching trains go by.

Thanks to engineers with 'Choo Choo U.' degrees, computers and new locomotives, more goods than ever now go by rail

At the railroad yard in Cheyenne, Wyoming, Luciano Capozzoli, 52, settled into his comfortable chair and eased back the throttle of Union Pacific No. 9501. With a soft whine that sounded like a muffled washing machine on spin cycle, the 4,000-horsepower diesel-electric locomotive, assisted by a 3,700-hp unmanned locomotive in tandem, growled to life.

Inside each of the locomotives, 12-foot-long diesel engines slowly spooled up to reach a combined 7,700 hp, the energy needed to climb to 8,015 feet, the highest point on the Union Pacific Railroad's thousands of miles of track. Not a whiff of diesel exhaust seeped into the modern, soundproof, climate-controlled cab. The snow-capped peaks of the Rocky Mountains towered 13,000 feet in the distance. "God's country," said Capozzoli.

The controls on the console in front of him appeared deceptively simple: the throttle, a couple of air brake levers, horn and bell buttons, and several gauges indicating speed, power draw and air brake pressure at various points along the train.

Fully computerized, today's locomotives have come a long way from their steam-powered "iron horse" predecessors. But in spite of all the technology, Capozzoli assured us, "a good engineer still has to *feel* what's happening to his train by the seat of his pants." He patted both his chair and the back of his striped bib overalls, which he wore over a Ralph Lauren polo shirt. Senior trainmen these days earn up to $90,000 a year.

Engineer Capozzoli and 37-year-old conductor Rick Bentsen, a genial fellow who also sat in the cab, called to each other as they neared each trackside signal, to confirm that they had read the lights correctly: "Double yellow!" Bentsen called out—the signal to slow down to 30 mph; then he called "High green!"—full speed ahead. The two men were all the crew on board, a dramatic cutback from earlier days when there were stokers to shovel coal into a steam engine's firebox, and brakemen to set the hand brakes on each car on a downgrade.

The train Capozzoli operated that day, originating in Council Bluffs, Iowa, and bound for Portland, Oregon, was a "Z-Train," or a "Zipper"—the Union Pacific's designation for the highest priority freight. We joined the crew on this trip and watched as we flashed by Wyoming towns with colorful names like Laramie, Medicine Bow and Rock River. The 200-car train carried industrial chemicals, grain, mail, automobiles—"everything from parkas to potatoes to toilet paper," declared Capozzoli as he offered us grapes from a plastic bag.

Railroader refuels locomotive on run-through service track, a train "pit stop," at Bailey Yard in Nebraska.

As 9501 crossed a high mountain plateau, we were amazed at the number of freight trains that raced past us going in the opposite direction. Each time, Bentsen did a "roll by"—a visual check of the passing cars. "You have a container leaning a bit, about 15 cars back," he radioed to the engineer of an eastbound train that roared by us near Laramie. "What happens if a container shifts too far on a car as it goes by?" we asked. "You've bought it," answered Capozzoli. "Checkout time."

A moment later we saw the headlights of yet another approaching locomotive. "We thought this was supposed to be a struggling industry," we said as the train blurred past. With Capozzoli's comment about "checkout time" fresh in our minds, we held our breath as the other mile-long train passed within three feet of 9501—combined speed: 140 mph. A wave of relief passed over us when the last car screamed safely by.

"Struggling?" Capozzoli shook his head and chuckled. "We've never been healthier. This country's freight railroads are the best in the world." The Union Pacific alone boasts some 19,000 miles of track and 70,000 freight cars, $6 billion in annual revenue—and it's still growing. The company is spending $650 million a year to replace worn equipment and add new track.

Indeed, it may have appeared to some that the U.S. rail industry was dead, but in fact over the past 15 years this sleeping giant has awakened like the hissing chug of a steam locomotive starting up.

"No other country in the world has such a modern rail freight system," said John Bromley, the Union Pacific's affable director of public affairs, who traveled with us on 9501. "And no other system operates at a profit without government subsidies. We may not have the high-speed passenger trains like Europe and Japan, but we've sure got them beat when it comes to hauling freight."

Along with the Union Pacific, there are six other rail freight handlers with more than $1 billion in annual revenues: Burlington Northern, Santa Fe, Southern Pacific, Conrail, Norfolk Southern and CSX. There are five railroads with slightly lower revenues, plus 400-odd "short lines" that serve small communities and feed to the giants boxcars filled with fruit, hoppers brimming with grain, and flatcars loaded with steel. Together they move 40 percent of the nation's freight, a figure that's climbing steadily as shippers the world over discover that trains are cheaper and more efficient than trucks. Between 1983 and 1993, rail productivity shot up an incredible 157 percent. Revenues have increased 32 percent, while rates dropped 40 percent.

As a result, the rail freight business is booming, and even the trucking industry is hopping on board. After years of cutthroat competition, many truck trailers are now being transported long distance by rail. Said Bromley, "It's cheaper to piggyback truck trailers on flat cars than pay for drivers and fuel on a cross-country haul. A locomotive moves a ton of freight 300 miles on a single gallon of fuel, compared to 100 miles per gallon for each ton by truck."

Railroading dates back to 1803 with the great steam-puffing "iron horse," invented in Great Britain. In the summer of 1830, America's first chartered railroad, the Baltimore & Ohio, sold tickets for its new service between Baltimore and Ellicott's Mills—12 cents for a 14-mile trip. The newfangled way of travel caught on quickly, and within three decades there were 30,000 miles of track from Maine to Georgia and west to the Mississippi River.

The railroad's military importance in moving men and munitions was proven during the Civil War. In 1869 the driving of the golden spike near Promontory, Utah, linking the East and West coasts by rail, marked the beginning of the golden age of railroads, a period that would last for half a century and would see the national

The D'Aulaires have written for SMITHSONIAN *about fashion mannequins, airliner maintenance and New York's Cathedral of St. John the Divine.*

railway network spread across a quarter-million miles.

It was during this period that legends were made: John Henry (who, by some accounts, died from exertion trying to drive spikes by hand faster than a steam hammer could), Buffalo Bill (who provided early railroad workers with buffalo meat) and Casey Jones—though, as it turns out, Casey may have been a bit of a scam. Said Steve Lee, one of the two Union Pacific engineers who still know how to operate the company's last two steam locomotives, "It was man against steel all right. And man lost." According to Lee, the erstwhile hero Casey grew confused in the fog and plowed his train into the back of another one that was trying to hustle onto a siding and out of his way. Casey was killed instantly, becoming a legend in the process. "They must have had a shortage of folk heroes back then," noted Lee wryly.

The golden age of railroads also saw the emergence of "robber barons," monopolistic railroad tycoons who lived in hulking mansions and lined their pockets at public expense. To halt corruption in the industry, the Interstate Commerce Commission (ICC) was established to enforce stringent government regulations on the railroads, dictating prices, routes, communities that would be served—and when. Regulations were a necessary move to save the industry, but when combined with the growing competition from cars, trucks and airplanes, the railroads were nearly pushed to extinction. By the late 1960s, companies like the Pennsylvania Railroad and the New York Central were headed for bankruptcy.

Then, in 1971, the federal government created Amtrak, which took over the failing passenger train business, allowing the surviving rail companies to concentrate on promoting more-profitable freight. A bill called the Staggers Rail Act of 1980 partially deregulated the nation's rail lines and freed the companies to set their own routes, rates and schedules. Overnight the Staggers Act took railroads from a shackled utility to a freewheeling, highly competitive—and decidedly modern—business roaring toward the 21st century.

Perhaps nowhere is this more apparent than at the Harriman Dispatching Center in Omaha, Nebraska, the nerve center of operations for the Union Pacific. Inside a 19th-century building called the "cow shed," every mile of track, every switch and signal light on the line shows up on 172 giant TV screens that mesh together in a system layout that stretches the length of two football fields.

At any time, day or night, 54 dispatchers watch the 4-by-5-foot screens to monitor the movement of 850 trains. Using touchscreen computer terminals, the dis-

Train dispatcher Gwen Boren controls traffic on the Union Pacific's busiest rail line, in central Nebraska.

Huge video screens at the computer center in Omaha cover the railroad's entire 19-state, 17,000-mile system.

At Bailey Yard, freight cars that are rerouted from incoming trains pass over a computerized "retarding" platform (left) that limits the speed of each car so it slowly bumps and couples with an outgoing train.

patchers control switches and signal lights a thousand miles away. They talk with the crews, giving instructions and clearances and alerting them to any problems.

A dispatcher is on the job for 8 hours straight, then off for 16; being "on" means just that. "There are no official breaks," said 43-year-old Gwen Boren, who's been a dispatcher for ten years. "If there is a lull in train traffic, I can run to the bathroom—but that's about it. I even eat meals at my computer; I can't take the chance of being away from the board."

About four years ago, an alert dispatcher noticed a light indicating traffic where there wasn't supposed to be any on his screen covering Southern California. The dispatcher knew a scheduled freight train was headed toward whatever was triggering the signal. A quick call to the Southern Pacific verified that several freight cars had in fact broken loose and were out of control. With just minutes to make a decision, the dispatcher considered switching the runaways to another track but noted an oncoming Amtrak on his screen. There was no choice; he would have to let the runaways hit the freight train. He radioed the crew to stop quickly and jump off the train. As they ran from the engine, the engineer and conductor could see the runaway cars bearing down at 45 mph, and moments later a horrendous crash filled the air. The collision reduced the runaways and the two locomotives to scrap steel. The good news was that no one was hurt and the Amtrak train had been spared.

Dressed in a full-sleeved white blouse and softly pleated print skirt, her long, brown hair pulled back with a blue ribbon, Gwen Boren hardly looks like a railroad worker. Like many of the dispatchers, she began her career working on the line. "At the time there weren't many female locomotive engineers," she says, "but it was 1976 and I was 25 years old. It was during the women's movement. Need I say more?"

Boren values the seven years she spent as a locomotive engineer. "I know how long it takes to change couplings, pick up cars, set them out, pick up engines, do mechanical inspections," she told us. "I've watered engines, fueled them—all that good stuff. My work as an engineer helps me be a better dispatcher. I know what the crews are telling me. I've been there."

At her dispatch station, Boren controls every switch, signal light, siding and train from Grand Island to North Platte, Nebraska, a distance of 175 miles. Her responsibilities end at the Union Pacific's Bailey Yard in North Platte, where local dispatchers, using computers, cut cars from some trains and couple them to others headed to their final destinations. Billed in the *Guinness Book of World Records* as the world's largest train yard—ten miles from end to end with 150 branching, parallel tracks—Bailey Yard handles 120 trains and 9,000 freight cars every day.

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At Conrail's car shop in Pennsylvania, workers repair a gondola, an open car used for carrying scrap metal.

Track worker installs metal plates after a derailment at Colorado's Transportation Technology Center (TTC).

TTC instructors Tom Davis and Virginia Oreskovich proctor student response to a simulated chemical fire.

it's a popular gathering place for hoboes, fugitives and thrill seekers looking for a free ride. "We find people hiding out between cars, inside cars, under cars and on top of them," said the Union Pacific's special agent Larry Campbell, a husky man with handcuffs hanging from his belt and a pistol strapped to his hip. He has the legal authority to arrest anyone trespassing on railroad property. "I know riding the rails sounds romantic to a lot of people, but it's a dangerous business."

We had joined him on his shift, and as we were talking, his radio suddenly crackled to life: "We've got a transient on railroad property." After pinpointing the location, we jumped in Campbell's four-wheel-drive vehicle. We skidded to a stop alongside a young, dark-haired man. The agent hailed him, flashing his badge. Campbell learned he was talking to a 25-year-old from Durango, Mexico.

"You're a long way from home, fella," he told the young man, motioning him toward the highway leading into town. "I try to go easy on trespassers like this," he told us afterward. "I can imagine what it would be like to be a stranger in a foreign country, so I cut them a little slack. But I bet this fellow will be back by dark, and then there's not much I can do but throw him in jail."

Later, back on board 9501 as it chugged through western Wyoming, engineer Capozzoli told us more about his job. "This might look easy, but good train handling is tricky." With three inches of slack at each coupling—six inches between each pair of cars—the locomotive of a 120-car train moves 60 feet before the last car in line moves at all. If power is not applied smoothly, the last cars are jerked ahead so violently that couplings can pull apart.

Stopping the train can be even trickier. If the brakes are pushed too fast, the cars slam into one another, sometimes knocking themselves off the tracks. "The trick is to apply the brakes gradually," explained Capozzoli.

The amount of air brake pressure available at the end of the train used to be monitored by a conductor who rode in the caboose (SMITHSONIAN, February 1986). Now a relic of a bygone age, the red caboose has been replaced by a Flashing Rear End Device (FRED), a black electronic box the size of a small briefcase. FRED dangles from the back of the last car and beams a blinking red light to warn trains approaching from behind. It also beams a radio signal up to the cab, where a digital readout reports the air brake pressure at the end of the train and whether or not the last car is actually moving. The readout helps the engineer start the train smoothly—and alerts him if any freight cars have separated because of rough handling; a string of cars stranded on a track is a potential runaway situation.

Though FRED reports accurately what's happening at the rear of a train, the device is less critical of the engineer than the human conductors used to be. Said one

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Conductor Jim Collins climbs back aboard No. 9501 after doing a "roll by," the visual inspection of a train passing in the opposite direction.

30-year veteran, "In the old days, if an engineer rough-handled a train, and the back end whipped around a bit, the conductor would be on the radio in a flash. Before we had radios, the conductor would pull the air brakes and force the train to a stop. Even if the train was a mile and a half long, the conductor would walk up to the engine and chew the engineer out."

Though he is no longer calling the shots from the caboose, the role of the conductor is still vital. He's the "boss" of the train, in charge of moving it safely and handling all the paperwork.

As we continued westward, conductor Rick Bentsen updated the train orders on a laptop computer built into the console in front of him: where to stop, where to pull onto sidings, where to pick up or let off cars, the tonnage and contents of each car and where hazardous materials were located. Bentsen's laptop was linked to a customer service center a thousand miles away in St. Louis. There, operators can tell a shipper exactly where a specific car is located and when it will arrive at its destination.

Typical of the kind of operation necessary to keep America's railroads running today is Conrail's freight car repair facility near Altoona, Pennsylvania. There, cars damaged from carrying scrap metal and coal are rewelded, strengthened and put back to work. Automated metal lathes the size of pickup trucks "peel" worn railroad wheels into perfect circles. The crew repairs 64 cars and turns out 13 new ones each day.

Not far away sprawls Conrail's locomotive facility, an immense complex of buildings where major services are performed on the company's 2,145 locomotives. We watched a giant yellow gantry crane lift a 90-foot-long, 425,000-pound locomotive smoothly over two other locomotives and settle it gently onto waiting wheel trucks. Nearby, 12-foot-long diesel engines were stacked like beached whales, waiting to be rebuilt and installed into locomotive skeletons that were lined along the plant's wall as far as the eye could see.

Just west of the Altoona yards the main line climbs a steep grade to Horseshoe Curve, considered one of the most beautiful sections of railway in the country. To sample this historic segment of rail, built through the Allegheny Mountains in 1854, we boarded a pair of Conrail helper units. The helpers were hooked onto the end of a 198-car train loaded with truck trailers to provide extra push for the nine-mile climb.

As we headed into the curve, it was so sharp, and the train we were pushing was so long, that the diesels pulling at the front of the train seemed to be traveling in the opposite direction. Along the dramatic curve, now a National Historic Landmark, there is an overlook where visitors can safely watch from behind a wrought-iron fence as trains struggle up the mountain. As we passed, dozens of rail buffs, some with portable scanners for listening to railroad chatter, crowded the lookout, waving at the train. Bruce Seguin, the talkative, bespectacled engineer, sounded the horn and waved back. "They never seem to tire of watching us go up and down the mountain," he said, grinning.

Rail buffs are a dedicated group who collect locomotive numbers like birders collect species. We saw them sitting at crossings, on top of bridges and on a special visitors' platform at the Bailey Yard, watching the trains rumble by, hoping to add a new number to their life list. One rail buff told us about a fellow he met on a footbridge that crossed rail tracks in a wooded area near a river. As the man stood on the bridge with his binoculars and radio scanner, another man—also with binocu-

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Per Ola d'Aulaire operates a simulator with help from an instructor at Burlington Northern's training center.

At Seattle rail yard a sidepicker lifts trailer from an incoming train to a truck for transfer to last stop.

lars—approached him. "Excuse me," the stranger asked, "have you seen a pine grosbeak yet?" The rail fan answered, not missing a beat: "Nope, just an FL9 and a B23-7." The birder left, looking utterly bewildered.

Accidents are rare, but whenever two railroaders get together the subject comes up. As we climbed Horseshoe Curve, engineer Seguin talked about some of his experiences. "Automobiles at crossings are my biggest nightmare," he said as he feathered the throttle. "Once somebody drove smack into my train at a crossing—then claimed it was my fault though there was a 42-foot-long skid mark proving the driver had been going too fast to stop." The person was lucky. Some 500 motorists die in crossing accidents each year.

"No one cares about avoiding accidents more than we do," said Seguin. "It's upsetting enough to hit a deer on the tracks, but when I see a car running a signal ahead of me, my heart jumps into my throat. People don't seem to understand that it takes us a mile to stop, even after pulling the emergency brake."

Conductor Stan Kohl told us an unnerving tale. "My brother is a Conrail conductor," he related. "On one trip he looked ahead and saw a small girl sitting on the tracks and knew there was no way to stop the train in time. While the engineer applied the emergency brakes, my brother ran out on the catwalk at the front of the locomotive, leaned forward over the coupling knuckle, and snatched the girl aboard an instant before the train would have crushed her. He's been called a hero many times for that act."

In the past, railroaders usually worked their way up the system, learning on the job. They began as brakemen, then slowly advanced to firemen and finally up to conductors or engineers. Nowadays engineers need to be certified by the Federal Railroad Administration, a requirement that didn't exist until 1991.

One who vividly remembers the "good old days" is Conrail conductor Charles Hazlett. Hazlett joined up because both of his parents were railroaders. A robust, white-haired 64-year-old, Hazlett began his rail career in 1948 when he worked as a helper on a steam locomotive, riding the "dog box," a small shelter on the coal tender. "Coming down a mountain, I'd help the brakeman by walking across the roof and manually turning the brake wheels on each car," he said. "A lot of men got killed that way."

If the fireman wanted help shoveling coal into the boiler, the engineer would throw a chunk of coal back at the dog box—the signal for Hazlett to climb over the coal pile and into the locomotive. "There was no place to sit in the cab except a crude seat for the engineer," Hazlett went on. "And despite the heat from the boiler, it was bitter cold in winter. As I saw it, the conductor who rode the caboose was the lucky one—he had a wood stove to keep warm. So I was glad," he added with a twinkle, "when I became a conductor."

Though Hazlett has moved an old railway station to his backyard and filled it with rail memorabilia, he doesn't miss the good old days at all. "Much as I like the

Such "intermodal" shipping is the fastest growing part of the nation's multibillion-dollar rail business.

No. 9501 engineer Jim Curry runs his mile-long train at 70 mph as he heads to the Port of Portland.

romance of steam engines," he declared, "I had the filthiest, dirtiest, most dangerous job I could imagine. Now I sit in a climate-controlled cab in a comfortable seat and let computers do most of the work. It's unbelievable how things have changed."

Indeed, as microchips and lasers replace oil lanterns and telegraph wires, the basic skills learned on the job are no longer enough. Now many railroads run their own training centers (known as "Choo Choo U.'s"), such as Burlington Northern's $35 million National Academy of Railroad Sciences in Overland Park, Kansas.

Along with a liberal arts curriculum—hardly the stuff of John Henry and Casey Jones—courses are offered in signal and track maintenance, train handling and simulator training. To give us a feel for how the students are tested, Daryl Steckler, director of locomotive simulator operations, suggested we take a turn in the engineer's seat. The cab and controls were identical to the real thing, complete with engine sounds. "OK," Steckler announced, "you've got five locomotives and 15,000 hp pulling 110 cars loaded with 15,000 tons of coal."

He switched on a computer, generating an image on a realistic curving, parabolic screen that filled the wall in front of us. "You're out in the Powder River coal basin, around Gillette, Wyoming," he explained, "on a 1 percent downgrade—steep for a train with this much weight."

We pulled the throttle up slowly, one notch at a time, and the speedometer needle edged up to 14 mph, a safe speed. "Your throttle is also a brake," Steckler instructed. "When you go from throttle setting 7 down to idle, you can engage the dynamic brakes to create a drag." We tried it but could barely notice any difference, and the speedometer still read 20 mph. "You're five miles above the speed limit," Steckler announced. He punched a few computer keys, and a school bus suddenly appeared on a crossing ahead.

Desperately sounding the air horn and "dynamiting" the train—pulling a red emergency handle that activated all the air brakes on the locomotive and every car—we plowed straight through the bus. To make matters worse, we released the air brakes without checking a critical gauge that indicated the air reservoirs had been emptied by the emergency maneuver. There was no time to build up pressure again, so the train picked up even more speed on the downgrade. A curve in the tracks loomed ahead. Suddenly the simulated landscape froze. "Congratulations," Steckler said. "You've wrecked a 110-car coal train."

While prospective engineers learn the ropes at training centers, the Association of American Railroads' Transportation Technology Center (TTC) near Pueblo, Colorado, shakes out all the newly manufactured equipment. There the locomotives and freight cars travel over 50 miles of test track laid out in a pretzel-shaped loop, while mainframe computers record their performance.

In the interest of safety, TTC engineers try to damage the new equipment: "We test it, rock it, roll it, yaw it, sway it, pitch it, bounce it, excite it, perturb it, shake it, track it, train it, spike it, impact it, compute it and re-

port it," they warn customers. Sometimes they are too good at their job. Last fall a freight train being tested unexpectedly derailed, tearing up hundreds of feet of track and reducing a half-dozen freight cars to scrap metal. "Much better that it happened here," said facility manager Warren Peterson philosophically. Meanwhile, technicians took advantage of the mishap to study gouges in rail ties and marks on the twisted rail to figure out exactly what happened. "People think of railroads as a 19th-century phenomenon," said Peterson, "but they're turning out to be a 21st-century sensation."

The sensation, however, is one of this country's best-kept secrets. "It's ironic," said John Bromley, "that in spite of all our recent successes, most people still think railroads are practically defunct, when nothing could be further from the truth."

One reason, Bromley said, is that railroads used to be more visible. "In the past," he explained, "people rode trains more than they drove cars. They'd go down to the station to fetch a relative or pick up their Sears order from the railroad depot. Almost every town had a depot, and almost everybody had a family member who worked for the railroad. It is still part of our lives, but people don't realize it. They aren't aware that the goods on the crowded shelves at the local discount store were transported by train. The average person doesn't order 11 million tons of coal, though that person may buy a pair of Nikes hauled by train from Seattle to Chicago."

Indeed, snaking silently along the creases and folds of the landscape, hidden by mountain shadows and tall trees, today's trains barely seem noticeable compared with the steam engines that years ago chugged noisily across the countryside, belching and billowing smoke.

"Railroads have been an integral part of the life of this nation for over 160 years," declared Bromley, "and they literally created many towns and cities across the nation. Their history and their future are inexorably bound to the development of our country."

By the time No. 9501 had crossed into Oregon, Capozzoli, Bentsen and several other crews had picked up their duffels and climbed off the engine to catch eight hours of sleep before taking another train back to home base. Today, engineers and conductors switch crews at regular intervals; they are prohibited by law from being on duty for more than 12 hours at a stretch. On the final leg to Portland, 58-year-old engineer Jim Curry and conductor Jim Collins, 47, took over the train.

Curry, we discovered, is yet another railroad buff. When he retires in four years, after more than 30 years behind the throttle, his dream is to travel on Amtrak. "It's what I really want to do. I can't get trains out of my system," he confessed, his lined face breaking into a grin.

"Of all the sections of the Union Pacific, I'm blessed to have this run," Curry told us as the tracks descended to the south bank of the Columbia River in western Oregon. As the train passed over a monitor that checks for overheated wheel bearings or loose equipment, a disembodied, computerized voice called out the milepost and reported: "No defects; train speed 58; temperature 88 degrees; everything looks fine. Detector out."

On the Washington side of the river, looking toylike in the distance, a long freight train with green locomotives and red container cars kept pace with the big yellow locomotive we rode. "That's our main competitor out here, Burlington Northern," Curry said. "We call them the Green Machine. They call us the Yellow Peril."

It's a healthy competition. Customers benefit as the

The familiar sight of a train crossing open prairie is secure as America's rail freight industry thrives.

two rail giants try to outdo each other on price and service; they're both successful. Each day about 50 trains from each company hurtle through the Columbia River Gorge, headed for the Port of Portland.

There, huge rubber-wheeled machines known as "sidepickers" and "sideloaders" lift the containers and trailers from incoming trains and move them swiftly to waiting ships and trucks. With long hydraulic arms that slowly fold and unfold, the machines look like something straight out of the *Star Wars* movies. This seamless marriage of several modes of transportation—the trucks and containers that travel by rail, road and sea—is called intermodal freight and is the fastest-growing segment of the rail industry today.

Portland is the main import point for Toyota on the West Coast, so while lumber, grain and potash are being loaded onto ships bound for Asia, crews drive the new Japanese automobiles into enclosed, three-level, autorack rail cars ready to head back East. "The globalization of the economy is driving this business through the roof," said Ben Laughlin, terminal operations manager at the Union Pacific's Albina Yard in Portland. "The intermodal traffic is increasing so fast it's hard to keep up with it. This industry can do nothing but grow."

After our journey aboard Union Pacific No. 9501 and visits to other rail facilities around the country, we realized how much railroads have changed and how prepared they are to meet the future. A train is now part of a unified transport system capable of taking hundreds of truck trailers and scores of ship containers and zipping them from one coast to the other. The rail freight industry is alive and well and clearly on the move. As a placard in a Union Pacific office in Cheyenne aptly puts it: "There is no end of the line for railroad people."

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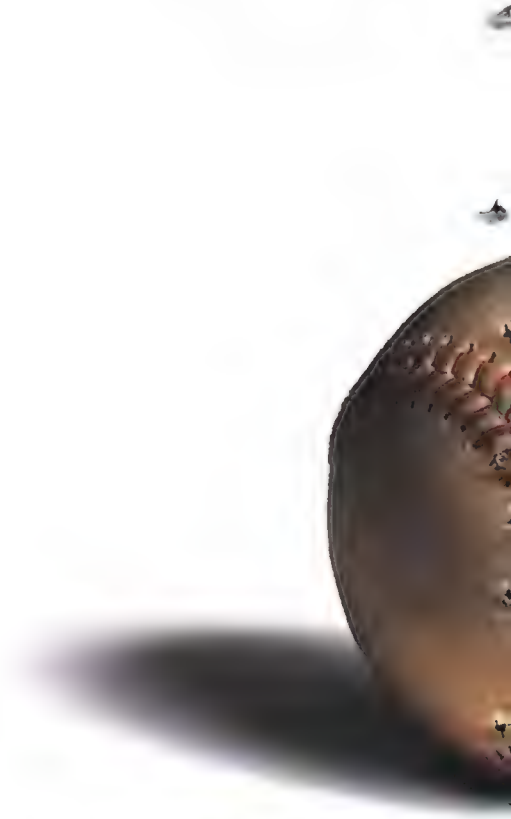

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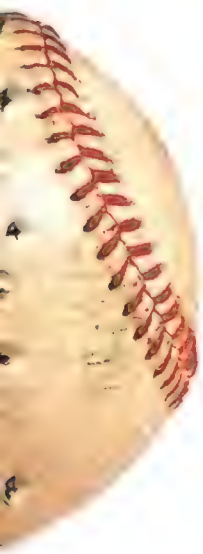

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By Phil Patton

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Dale Chihuly's scalloped blown-glass sculpture is right at home in the Center Hall of the White House.

Presidential portraits in the Blue Room (opposite) preside over David Levi's two-foot-high *Bird Jar.*

Two graceful yellow shapes, evoking those of ancient Greece, sit on an antique table. Outside, through the window, the Washington Monument rises against a bright autumn sky. In the Yellow Oval Room of the White House, the two glass vases by craftsman Dante Marioni, one elongated and rising, the other wide and cuplike, seem at home. Pondered for a while, they suggest wading birds of two species, or perhaps even upright Don Quixote and squat Sancho Panza (see cover).

But for a few months, Marioni's work, along with those of 76 other contemporary American craft artists, have left the White House, traveling across town to the Smithsonian's National Museum of American Art (NMAA), where they will be on view until September 4. In the words of First Lady Hillary Rodham Clinton, the show illustrates "the extraordinary beauty and diversity of American craftsmanship." For those who cannot come to Washington, a catalog of the show, *The White House Collection of American Crafts*, is being published by Harry N. Abrams. Moreover, thanks to a grant from MCI, a tour of the exhibit will be available on the World Wide Web, a part of the Internet, complete with images,

Photographs by John Bigelow Taylor

Imago Bag by Kate Vogel and John Littleton, in the Entrance Hall, looks soft but is actually glass.

Sharon and Leon Niehues created their *Eburna* basket using white oak, waxed linen thread and coralberry.

Ronald Fleming's lathe-turned, carved redwood-burl bowl resonates with the rich wood of a Red Room table.

Anne Hirondelle's stoneware teapots are a natural fit with the Diplomatic Reception Room's 1834 wallpaper.

descriptions, sound and video clips. This breaks new ground; it is part of the museum's goal of reaching people who can't travel to its stately premises.

The juxtaposition of high-tech and handmade may at first seem incongruous but, in fact, the show reveals a wonderful congruence between these seeming opposites. Creating computer programs is a craft of its own, demanding talent and skill. And many crafts are more high-tech than we might think, using advanced tools and materials to leverage the vision of the hand.

"There's a lot of technology to crafts," muses the show's curator, Michael Monroe, "and we were interested in showing the connection." Monroe cites Edward Moulthrop, originally trained as an architect, who produces huge turned wood bowls. Moulthrop soaks the wood for three months in polyethylene glycol, a chemical solution that keeps the wood from shrinking or cracking. Only this solution allows Moulthrop to work pieces of wood this size. Another craft artist, Sidney Hutter, uses glues cured by ultraviolet light to bond pieces of glass. These glues, developed for the electronics and glass industries, lend a seeming fragility to the spiral patterns of Hutter's *White House Vase #1.*

The crafts collection grew out of a 1992 proclamation by President George Bush that designated 1993 as the Year of American Craft. After Mrs. Clinton's arrival at the White House, she talked with Monroe, curator-in-charge of the Smithsonian's Renwick Gallery, which is a part of the NMAA. Together, they came up with the idea of decorating the White House Christmas tree with hand-crafted ornaments. Over a single weekend, Monroe worked feverishly to contact craft artists, asking them to send ornaments. Enough were received to decorate not only the White House's ceiling-high Fraser fir but seven other small trees as well.

Seeking to expand on that project, Mrs. Clinton and Monroe decided to assemble a group of larger crafts items for the White House itself. Monroe compiled a list of potential artists, expecting only about half of those he contacted to agree to donate work. Once the idea was born, "I made up the list in 48 hours," Monroe recalls, his eyes gleaming with mischief. The short time period is a sign not of carelessness but of connoisseurship; Monroe is one of only a handful of people well enough informed about the crafts world to make such decisions so rapidly. All 77 of the craft artists agreed to participate.

When the works arrived, they were placed on Duncan Phyfe tables and historic marble mantels in time for Christmas at the White House. Some of the pieces were used to serve foreign leaders being entertained by the President and First Lady; others became centerpieces for Presidential dinners. About a million visitors to the White House also saw them, but Monroe dreamed of showing the works to many more people than that. Since the Renwick Gallery's schedule was full, the exhibit was planned for the NMAA.

In placing the pieces in the White House, Monroe worked carefully to find locations where they would be particularly effective, although they will be rotated from time to time. Master glass artist Dale Chihuly's *Cerulean Blue Macchia with Chartreuse Lip Wrap,* a form that resembles a huge sea scallop dipped in rainbows, repeats the scalloped pattern of the fanlight in the Center Hall. David Levi conceived his *Bird Jar* with the Blue Room in mind; the arabesque of the blue bird on the jar's top contributes to the sense of calm in the elegant room, where portraits of Madison and Jefferson hang. Ronald Fleming's leaf-inspired, redwood-burl bowl rises like spring growth in the Red Room. Graceful, wheel-thrown stoneware bottles by Michael Sherrill sit near a portrait of Jacqueline Kennedy Onassis.

The fine-art quality of craft

All of the craft artists were surprised and delighted when Monroe originally contacted them. Nathan Youngblood—who studied with his grandmother, Margaret Tafoya, one of the last of the traditional Pueblo potters—went to the White House after his piece was put on exhibit. It was a great honor, he says, to see his *Black Carved Jar* in the stately Cross Hall. "In the last 25 years," adds Youngblood, "artists have taken pottery to such a level that people are beginning to understand there is a possibility of its being fine-art quality and not just craft."

For his part, Monroe is little concerned with defining crafts or distinguishing them from high art or folk art. And while the NMAA is renowned for its collections of high art and folk art, including self-taught art, the distinctions that NMAA director Elizabeth Broun sees are not based on function or hierarchy. To her, what distinguishes craft is a highly sophisticated understanding of materials and process; they are at the heart of the creative experience. "We don't pretend the categories are divine revelation," Broun says, "but they are useful and practical."

To be sure, crafts suffer from a bad image with the public at large. The term carries connotations of baskets made from kits and of low technology, in contrast with "high" arts such as oil painting or bronze sculpture. Part of this, to Monroe, has to do with simple ignorance of history. "In the early Renaissance," he points out, "at the top of the hierarchy of artists was the goldsmith."

In the West, the idea of crafts as a category separate from fine art emerged as a reaction to the Industrial Revolution, as crafts came to be seen as a handmade, humanistic alternative to the "soul-deadening" ma-

Phil Patton wrote Made in USA: The Secret Histories of the Things that Made America. *In June 1993 he wrote on the 1893 Columbian Exposition in Chicago.*

A French pier table bought by President James Monroe in 1817 holds *Prayer Bowls*, made by Cheryl Williams.

chine. This is the tradition of William Morris in England and of Gustav Stickley in the United States. In the White House itself, the appreciation of crafts as art was evident as early as 1882, when the otherwise little-remembered President Chester Arthur commissioned Louis Comfort Tiffany to create a floor-to-ceiling stained-glass screen for the Cross Hall (it remained there until 1902).

During the 1930s, when the Depression and the New Deal moved the country into a retrospective mood, there was rising consciousness of crafts as both a historical legacy to be documented and a living, evolving set of traditions. Schools such as Penland in North Carolina, Otis (now Otis Parsons) in California and Cranbrook in Michigan developed programs to keep the crafts vital.

The American Craft Museum was established in 1956 just down the street from the Museum of Modern Art in New York City. In 1972 the Renwick Gallery, housed in a French Second Empire building next door to Blair House, the Presidential guest residence, became the nation's official crafts museum. Since Michael Monroe became curator-in-charge in 1986, the Renwick has broadened its role in the field of crafts, publishing books in the "Contemporary American Craft Series" and mounting exhibitions on everything from silverware to quilts.

For the designers of the current exhibition, an evolution in the ways that art is presented to the public seemed to match the theme of the evolution of the crafts themselves. Steve Dietz of the NMAA conceived the idea of juxtaposing crafts and computers with a version of the show on the Internet. "It lets you go into the White House in a way you could not otherwise do," he says one day while planning the virtual exhibition. He sees many ways of organizing the images and information. "We will have an electronic light table," Dietz says, where images will appear on a computer screen like slides laid out. "Clicking" on one of these little images will cause a screen-size image to appear along with a caption. Other planned features include a look at a map of the United States showing where the craft artists live; clicking on their names will call up further information, including videotaped interviews with many of them. Viewers can also take a guided tour of the exhibit with Michael Monroe or put together a personal tour, "navigating" with the computer mouse.

All this, of course, is not the same as visiting the actual exhibition, but many people do not have the choice of a real visit. The computer tour will be accessible to people around the globe, and this version of the show will never go "out of print"; it will live on inside a pizza-box-size computer on the first floor of the NMAA (the address is http://www.nmaa.si.edu).

One floor above that computer, in the grand barrel-vaulted and granite-columned office of director Elizabeth Broun, the exhibition's planning group met in February to discuss the Internet version of the show. One couldn't help but notice that Broun's carefully hand-crafted desk contrasts with the computer that sits on it.

At the meeting, there's a lot of talk of "hypertext markup language" and "built-on-the-fly databases." Michael Monroe rolls his eyes and smiles at the strangeness of it all. He has never seen the World Wide Web, but he has a number of very good ideas nonetheless. He has gotten images from the craft artists themselves; he has a list of those who are willing to be interviewed on videotape in their studios.

For Elizabeth Broun, there are concerns. "We're getting into all kinds of uncharted territory here," she says. How will visitors react to the idea of a stationary camera that will provide images of the exhibition spaces over the Internet? Why is it useful? "It reinforces the metaphor that you are there," says Steve Dietz.

Will there be enough telephone capacity if the virtual exhibition becomes very popular? "We call it the 'success disaster,'" Dietz laughs.

In the end, what they agree on is that the virtual exhibition must be as carefully put together as the real one, as elegant in form as the objects in the show. Says Dietz, "It has to be crafted by hand—so to speak."

Michael Sherrill's *Incandescent Bottles* echo Aaron Shikler's 1970 portrait of Jacqueline Kennedy Onassis.

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QUALITY IS JOB 1.SM

By Jon Krakauer

The toll you pay to enter this Eden is sweat, pain and fear

But that, as the author is reminded on his second visit, makes Gates of the Arctic National Park all the more intoxicating

The route climbed to a high divide that was notched like a gunsight between bald granite cliffs. Humping a big load up the pass, I was preoccupied with the weight biting into my shoulders and the rocks shifting underfoot, so I didn't see the bear until it was less than 75 yards away. I paused to catch my breath, glanced up, and there he was: a 350-pound grizzly, loping across the talus that spilled down from the notch. Because the wind was at his back, he hadn't yet noticed me; a single path led over the divide, and I was on it.

Since this was happening high in the Brooks Range, well north of the Arctic Circle, there were no trees for me to climb. I didn't have a gun. Running, I knew, might invite attack. Too scared to breathe, I tried to remain calm but felt my mouth go dry.

The bear kept coming. At 30 yards, catching my scent, he stopped abruptly and reared onto his hind legs. His shaggy blond fur rippled in the breeze. The grizzly sniffed the air, stared at me, sniffed some more. And then he dropped to all fours and bolted in the opposite direction, sprinting across a jumble of tank-trap boulders at a speed that defied belief.

The date was July 2, 1974. Two decades later the memory is still vivid. For a long time after the bear ran off, I sat on a rock and just listened to the pounding of my

Brawny Arrigetch Peaks are a centerpiece of "Gates," which sprawls over 8.4 million pristine acres in Alaska.

Photographs by Roman Dial

Wilderness buff Krakauer, a seasoned mountain climber, shoulders a 75-pound pack for the backcountry trek.

heart. It was an hour after midnight. Mosquitoes swarmed around my face. Far above the divide, a prow of jagged granite burned orange in the twilight, illuminated by a sun that never set. Ranks of nameless mountains marched into the distance as far as I could see.

Over the preceding weeks I'd become attuned to wolf song and the whistle of golden plovers, walked through a snorting tide of caribou and gorged on fat grayling pulled from crystalline streams. Now I'd stared into the eyes of *Ursus arctos horribilis*, only to discover that the star of my nightmares was even more discombobulated by the encounter than I was. I would see four more grizzlies before the month was out.

I'd climbed and fished in the emptiest reaches of the American West, but Alaska made the wilds of the lower 48 seem insipid and tame, a toothless simulacrum. In the Arctic, for the first time in my life I was surrounded by real wilderness. Even as a callow 20-year-old I understood that such an experience, in the late 20th century, was a rare and wondrous privilege.

Six years later Congress recognized the singularity of the Brooks Range and set aside 8.4 million acres of it as Gates of the Arctic National Park and Preserve. The size of Massachusetts and Connecticut combined, Gates of the Arctic is the second-largest unit in our national park

On a rare sunny day, Peggy Dial high-steps through a tussock bog in the Alatna Valley; the author follows.

Escaping tussocks, Krakauer sets out on an inflatable raft in a shallow stretch of the upper Alatna River.

system, yet few Americans have ever heard of it and fewer still have been there. It is visited by some two thousand people a year, compared with the more than nine million who visit Great Smoky Mountains National Park or the nearly four million who go to Yosemite.

This gaping disparity is largely a function of access. Yosemite lies four hours by automobile from San Francisco Bay and the region's six million residents; tourists can gawk at El Capitan and Yosemite Falls without ever stepping out of their cars. Although Gates of the Arctic has scenery that rivals Yosemite's, it's situated in remote northern Alaska. It's impossible to drive through because there are no roads. Within the park boundaries, moreover, there are no ranger stations, no motels, no snack bars, no souvenir shops, no maintained campgrounds, no facilities of any kind and no footpaths.

The fact that Gates is a hard place to get to, and even harder to get around in, is its saving grace. Park regulations have been formulated to keep development and visitation to a bare minimum, but not everyone is pleased with this. Critics carp that Gates is an "elitist" park. What's the point of setting aside such an immense tract of land, they ask, if it's effectively off-limits to all but a tiny handful of the public?

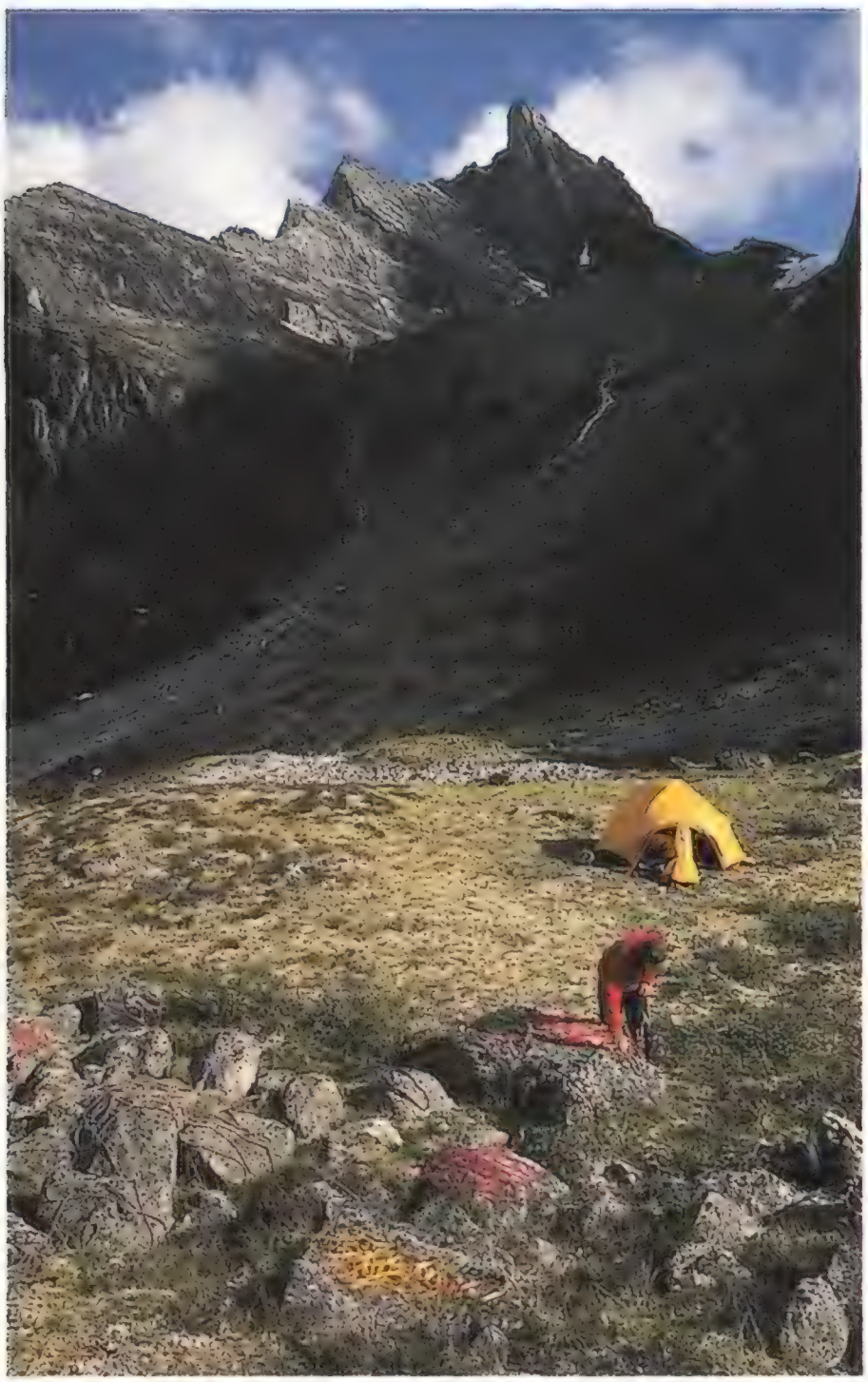
The answer, explains John M. Kauffmann, a now retired civil servant who was in charge of planning the park in the 1970s, is that the "northern environment is easy to damage and slow to heal." Some Arctic lichens grow less than a sixteenth of an inch annually. Heavy traffic from all-terrain vehicles (ATVs) is apt to scar the muskeg for decades. "If Gates of the Arctic were to be made as accessible as Yosemite," Kauffmann says, "the very things that make it worth preserving would be destroyed."

In his book *Alaska's Brooks Range*, Kauffmann writes that when pondering how much development should be permitted in Gates, he and the other planners decided that it would be best to do nothing: "Visitors would take the Brooks Range on *its* terms, not theirs. . . . We borrowed a karate term to call it a black-belt park. Not for neophytes, it would be at the ascetic end of a spectrum of national parks . . . with no one park needing to be all things to all people. . . . We remembered Aldo Leopold's comment, . . . 'I am glad I shall never be young without wild country to be young in. Of what avail are forty freedoms without a blank spot on the map?'"

Thanks to aerial cartography and satellite navigation,

Jon Krakauer's book Into the Wild, *the true story of a young man who starved to death in the Alaskan backcountry, will be published this year by Villard.*

Author's route (red line) begins in northwest corner of Gates and ends with a loop around Arrigetch Peaks.



After setting up tent on rocky ground in the Arrigetch, Krakauer lays rope and other wet gear on rocks to dry.

there are no more blank spots on any map, alas, not even in the Alaskan Arctic. Every year more people troop through Gates. The National Park Service has estimated that by 2010, the annual tally will swell to 18,000 visitors. Some advocates, Kauffmann among them, believe many of the most extraordinary attractions have already been irreparably damaged. Last summer, curious about how one of our last big chunks of raw wilderness was holding up, I returned to the same part of the Brooks Range I had visited two decades earlier.

I embark for the backcountry, like most people who go to Gates, from the metropolis of Bettles (pop. 45), about 25 miles outside the park's boundary. At the time of my first trip there was a single bush pilot in town; now there are two competing air-taxi services employing a half-dozen pilots. Accompanied by Alaskan friends Roman and Peggy Dial, I climb into a 1954 De Havilland Beaver moored on the Koyukuk River. Pilot Jay Jespersen opens the throttle, the airplane's aluminum floats lurch free of the roiling current, and we fly north by northwest under a lowering sky.

Two hours later we bank hard over a small lake. Jay scans for moose or other obstacles, brings the Beaver down, and we wade ashore in a light rain. As the airplane flies off, the roar of its engine quickly fades and is replaced by a monumental silence. I feel a long way from anywhere. In fact we're closer to Siberia than Anchorage. The nearest highway is the haul road for the trans-Alaska oil pipeline, 180 miles to the east.

The lake where we landed is the source of the Alatna, one of the major rivers draining the Brooks Range. For the initial leg of our three-week ramble, we intend to paddle 47 miles downriver, but the mighty Alatna begins as an ankle-deep trickle, so our inflatable rafts remain in our backpacks, and we walk until the river becomes deep enough to float them.

Doing the tussock-mound hop

The Alatna flows down a broad, U-shaped valley bounded by rubbly escarpments rising into the clouds. Clumps of caribou—200 here, 75 there—file slowly across the stark terrain. From the air the valley had looked as smooth as a golf course, but it turns out to be the typical swamp of tussock tundra. The valley bottom is covered with millions of spongy, cauliflower-shaped mounds of cotton grass that make for slow, frustrating travel. One must either high-step over each mound, which necessitates walking in the sucking bog from which the cotton grass grows, or stride uncertainly from crown to tippy tussock crown, inviting pratfalls.

To escape the tussocks we search out gravel bars along the river, wading back and forth across the stream to link them. Everywhere the damp sand is imprinted with the tracks of caribou, moose, wolf—and bear. Compar-

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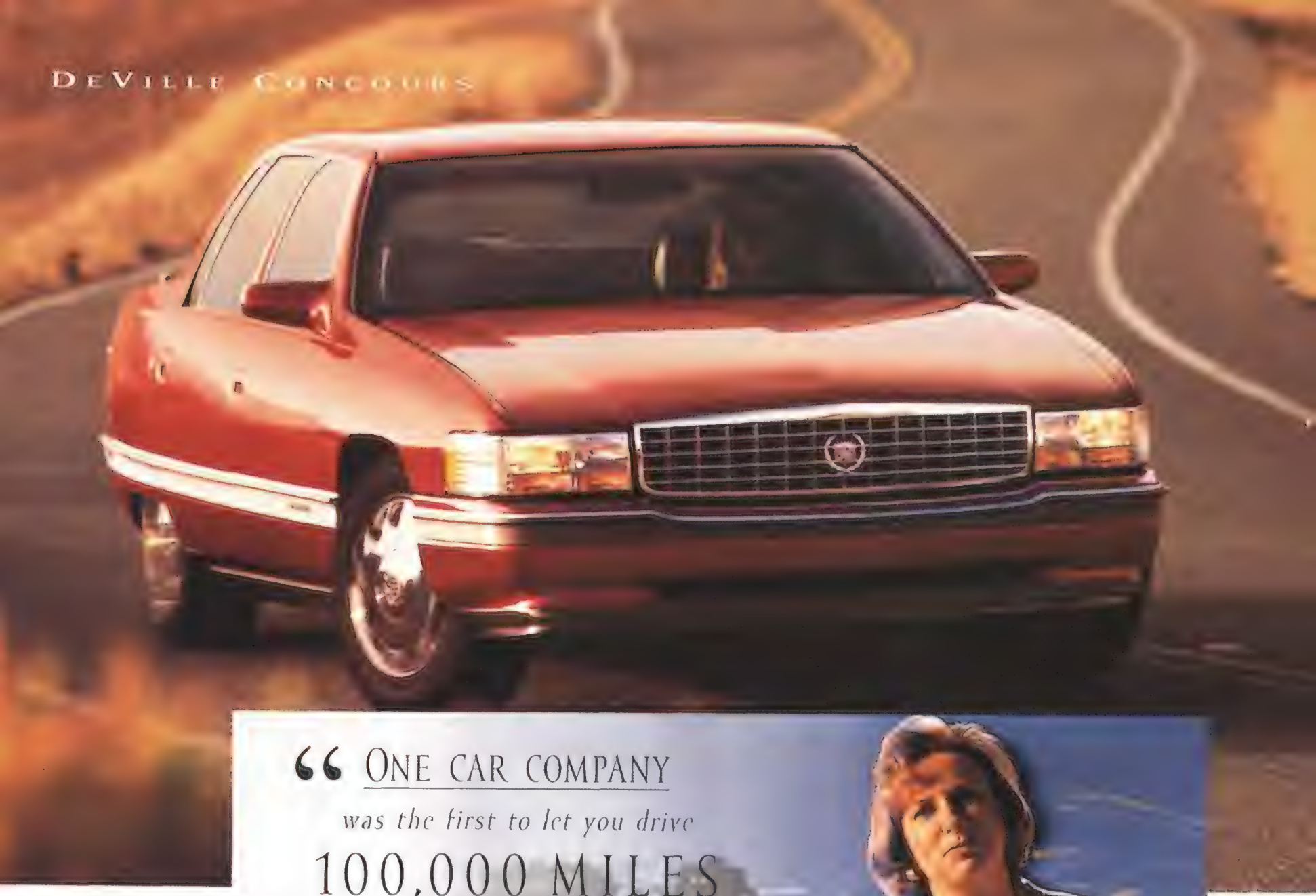

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ing my size 9 boot to a fresh grizzly print, I estimate the bruin would wear size 20 Nikes.

The Dials, especially Peggy, share my "bearanoia," as she calls it. In 1986 Roman walked, skied and paddled a thousand miles from one end of the Brooks Range to the other, and Peggy, pregnant with their first child, accompanied him for a month of the journey. Near the headwaters of the Nahtuk River, a tributary of the Alatna, they surprised a grizzly sow foraging among the blueberry bushes. Unlike the bear I'd met, which ran away, this one bluff-charged them repeatedly.

"Bears have poor eyesight, so they'll bluff-charge in order to see how you react," says the peripatetic Roman, a professor of biology at Alaska Pacific University. "If you act like prey and run, they'll assume that's what you are." Somehow maintaining their composure, Peggy and Roman edged away from the grizzly's turf, and after charging four times she left them alone.

On this trip I'm carrying a weapon to defend against bear attack, the first time I've ever done so: an aerosol can of pepper spray of the sort urbanites use to ward off muggers. Back in Bettles, I had shown my pepper spray to a bush pilot named Barry Yoseph. "Yeah," he said as soon as he stopped laughing, "I reckon them bears will be mighty pleased to see you carrying that stuff. Should add a little spice to their supper."

Letting the river show the way

After we've covered several miles on foot, the Alatna becomes marginally deep enough to float our tiny rafts. We have only two inflatable boats for the three of us, so Roman and Peggy share one, and I take most of the gear in the other. It's a pleasure to let the river do the work, but shortly after casting off, the Dials rip a hole in the bottom of their overloaded craft, forcing us to stop and make camp on a gravel bar where we can dry the boat over a willow fire and patch the leak.

By morning the rain clouds are gone. It's early August, but the air already has a sharp autumnal bite. Lazing around camp until noon, we sip coffee in the muted sunlight and watch the underwater antics of small, wren-like birds called dippers. When we get under way, feeder creeks rapidly bolster the Alatna's volume, transforming it into a flume of whitewater that carries us south at three times our walking speed.

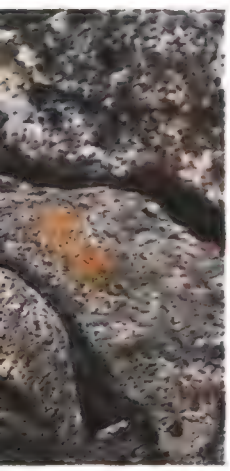
Within an hour of breaking camp we reach the vanguard of the northern tree line, a single puny spruce resembling an overgrown pipe cleaner, and soon thereafter scrubby northern forest known as taiga (from a Russian term meaning "land of little sticks") crowds the shore. The Arctic sun scribes a low arc, never climbing much higher than the horizon, casting the denuded bluffs above the valley in a spectral glow. At day's end, we have drifted more than 40 miles.

Close inspection of vegetation in the vicinity of a lake in Gates (top) turns up a surprising diversity.

Twenty years earlier, six friends and I spent 32 days in the Brooks Range without seeing another soul. In the morning I am thus taken aback to see a group of ten people camped across the river. Before the day is out, moreover, a yellow Cessna disgorges two additional planeloads of wilderness seekers onto a nearby lake.

The Alatna, like most big rivers in the Brooks Range, flows fast but has no terrifying rapids. If the absence of trails makes hiking through this country a labor-intensive grind, traveling by water is downright cushy. This is why the great majority of visitors flock to the half-dozen navigable rivers—and why, in a park with so much acreage and so few humans, those visitors are often dismayed to encounter other people.

I'm disappointed too, although I shouldn't be surprised. Before we'd left Bettles, Chief Ranger Glenn Sherrill warned, "You can hike through 99 percent of Gates and you won't see anyone. Park use is heavily concentrated along the Alatna, the Noatak, the John and



Flora include mushrooms sprouting amid spruce trees (opposite), lichens on granite, and blueberries.

the North Fork of the Koyukuk. The only other place you're likely to run into a crowd is in the Arrigetch."

The Arrigetch Peaks, a cluster of sheer granite spires west of the Alatna Valley, form one of the loveliest places in Gates of the Arctic, if not the world. Although the "crowd" to which Sherrill referred numbers no more than 150 people annually in the entire 150-square-mile Arrigetch massif, it's a problem because in the High Arctic that many people, no matter how careful, are bound to leave an indelible mark. Not very many years ago the trudge up Arrigetch Creek demanded attentive route-finding and nasty bushwhacking through all-but-impenetrable alder thickets. Now the march of boots has trampled a muddy thoroughfare up most of the lower valley. At popular campsites, the tundra has been worn down to bare earth. Bears in the area have grown habituated to human rubbish, prompting rangers to place steel barrels at the busiest camps so that the bruins won't pilfer backpackers' garbage or food.

As Peggy, Roman and I hike up the creek from its confluence with the Alatna, though, we encounter nobody. Halfway up the valley the makeshift trail we've been following peters out, and we see no further sign of human passage whatsoever.

The higher we ascend, the more the country resembles the phantasmal scenery of an epic Tolkien novel. Our route takes us across soft carpets of reindeer lichen, and beneath sinister black cliffs and hanging glaciers. The creek, opaque with glacial sediment, is never far away. Most of the time the stream is a thundering cascade, frothing from drop to drop over gargantuan blocks of stone; at other places it slows and spreads into placid cerulean pools in which reflections of the surrounding alps shimmer like hallucinations.

Exhilaration on an airy summit

At the head of the creek we find ourselves in a natural cul-de-sac, nearly encircled by soaring walls. We continue the only way possible: by going up and over the top. It's a rigorous climb of 4,000 vertical feet that culminates on an airy summit as slender as a thorn. The whole expanse of the Arrigetch is visible from this vantage, a dazzling chaos of mile-high granite pickets. As we descend to the west, into a virginal cirque cradling a half-frozen lake, I'm reminded that it's the astonishing wildness of this place, even more than its splendor, that's responsible for the intense tingling in my chest.

A mere two-day walk (albeit a strenuous one) from the relative hubbub along the Alatna has transported us into a landscape as primeval as that which moved Bob Marshall so powerfully six decades ago (SMITHSONIAN, August 1994). Describing the country east of the Alatna, the celebrated conservationist wrote, "Nothing I had ever seen, Yosemite or the Grand Canyon or Mount McKinley rising from the Susitna, had given me such a sense of immensity. . . . No sight or sound or smell or feeling even remotely hinted of men or their creations. It seemed as if time had dropped away a million years and we were back in a primordial world."

Marshall wasn't the first Caucasian to penetrate the Brooks Range. An earlier explorer, Navy Lt. George M. Stoney, noted the "rugged, weather-scarred peaks, lofty minarets [and] cathedral spires" of the Arrigetch while exploring the Alatna as early as 1886, but Marshall was the Arctic's most ardent champion. He is responsible for the name "Gates of the Arctic," which he bestowed upon a pair of stately mountains bracketing the North Fork of the Koyukuk. Park planner John Kauffmann observed that Marshall's appellation has "captured the imagination of all who have heard it. It did much to bring about national park status for the area."

For millennia before Marshall or Stoney ever set foot in Alaska, of course, Athapaskan (Indian) and Nunami-

Krakauer first scaled these knife-edged peaks near the Arctic Divide 20 years ago, before park was created.

ut (inland Eskimo) hunter-gatherers lived and traveled throughout the Brooks Range. According to an oral history passed down over the centuries, the Nunamiut people were created by a giant deity named Aiyagomahala. After giving them life, he taught the Nunamiut to live off the land and showed them how to survive the brutal cold and long nights of the Arctic winter.

So that he and his teachings would be remembered, Aiyagomahala set one of his Brobdingnagian gloves down beside the Alatna River and transformed it into the most spectacular cordillera in the Brooks Range—the peaks I now see rising around me. The Nunamiut christened them the "Arrigich," which means "fingers of the hand extended."

Prior to 1890, bands of Nunamiut roamed across much of what is now the park. Contact with white explorers and whalers at the turn of the century, however, introduced epidemics of measles and influenza for which the Native people had no immunity. During this same period the herds of caribou that provided the people with most of their food, clothing and shelter went into cyclical decline. Ravaged by famine and disease, the Nunamiut migrated from the mountains, their traditional homeland, to settlements on the Arctic coast. Even before Marshall's first trip to the Arctic, in 1929, they had all but vanished from the central Brooks Range.

Today the Nunamiut are back in Gates of the Arctic. Most of those who live within the park reside in the village of Anaktuvuk Pass, a settlement of plywood or prefab houses huddled on a broad, windswept divide near the source of the John River. There are only a few flush toilets in this community of 250 (the permafrost makes plumbing problematic), but there is electricity, cable television, a handful of telephones, a fancy new school—and an astonishing number of cars, given that there is nowhere to drive beyond the few blocks of gravel streets that constitute downtown Anaktuvuk.

Village existence is an incongruous blend of the timeless and the modern. A wage-based economy has supplanted the subsistence life of old to a great degree, but hunting and trapping remain an extremely important component of Nunamiut culture. On occasion this has led to conflict with the Park Service mandates.

Learning to live and let live

The Nunamiut have forced the agency to rethink some of its fundamental policies. Initially, Kauffmann explains, some officials were inclined to regard Gates as they regarded parks in the lower 48, "where the rules were clear and long established, hunting, even for subsistence, was out of the question, and Native people were usually artifacts of the past rather than a living part of the ecosystem." In Gates, however, park administrators are making concessions to Alaskan politics, Native traditions and idiosyncrasies of the northern lifestyle. Ultimately, the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) decreed that subsistence hunting and trapping by local residents, Natives and non-Natives alike, would be permitted in the park.

For some time, officials tolerated subsistence hunters' driving their ATVs in parklands adjacent to Anaktuvuk. As a result, miles of ruts made by eight-wheeled, amphibious machines known as Argos crisscross the Nunamiut private lands, and scars extend into valleys across the northeastern quadrant of Gates.

The final details of a controversial compromise were hammered out between the Nunamiut and the Park Service last summer. The agreement rearranges park wilderness boundaries, allowing ATVs into 158,000 acres of ancestral hunting grounds now within Gates, but it prohibits mechanized access even for subsistence beyond these mutually recognized areas.

In any case, ATV tracks are nowhere in evidence on the

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Braving cold and a blowing rain, Peggy Dial inches across a slippery precipice while author awaits his turn.

back side of the Arrigetch massif, where Peggy, Roman and I are camped in the rain at the foot of a mountain that looks like an Arctic version of Yosemite's Half Dome. The terrain here, like most of the higher reaches of the Brooks Range, is much too rugged for Argos, and few hikers wander this far from the rivers. The only tracks we've seen belong to caribou, Dall sheep and bears.

"For dinner tonight, how about potato flakes and macaroni?" Roman asks as raindrops drum on the tent fly. "They taste great together."

"That's what you said about the tuna and spaghetti," Peggy says. We settle on freeze-dried chili instead.

In the morning, Peggy finds a week-old grizzly kill just beyond camp—the half-eaten carcass of a young caribou. Wondering when the bear will return to eat the rest of it, we try to take our minds off the subject by investigating the glassy chunks of quartz that lie scattered across the tundra like pieces of petrified ice.

Striking camp and moving on, we struggle up a steep pass as a storm builds to a howling gale. Sleet sprays the cliffs that cap the divide, making the rock too slippery to attempt without climbing gear. Pulling coils of rope from our packs, we spend the next three hours negotiating a 500-foot precipice, while icy water fills our boots and dribbles down our upstretched arms.

Shivering uncontrollably and soaked to the skin, on the far side of the pass we escape the wind but remain in dense fog that restricts visibility to a few dozen yards. Navigating by compass and altimeter, we pick our way through a dreamscape of lush heaths and tortured stone. Waterfalls tumble over sprawling, glacier-polished slabs streaked with orange lichens. Massive boulders appear out of the mist, jutting from meadows of heather, moss and tufted *Dryas.*

My feet hurt. My pack feels like it weighs 200 pounds. I'm bone-tired, dripping wet and want very badly to crawl into my sleeping bag. In 48 hours, however, an airplane is scheduled to meet us at a distant lake; if we are to arrive on time, we have to keep moving. There is still one more high pass to climb before we can rest.

People who have never ventured into the "back of beyond" might wonder why anyone would want to. As I trudge forward, the answer is everywhere I look. The Brooks Range is such a seductive place to visit, not in spite of the hardships but because of them. The fact that admission to this Eden requires a toll paid in sweat, pain and fear makes its beauty all the more intoxicating.

It's after midnight when we reach the base of the next pass. The slope is steep and the footing loose, but as we push stubbornly upward the fog lifts, unveiling a panorama of ripsaw mountains in the fading light. Scraps of cloud wrap the summits like gauze. The ghostly blue tongue of a glacier hangs from a nearby ridge. By and by we stand atop the pass, a shank of wind-scoured rock marking the Arctic Divide. Snowmelt burbling from the cliffs at my back is bound for the Arctic Ocean; ahead, in the valley at my feet, we will camp tonight beside a creek that flows into the Pacific.

I'll be happy as hell to finally make camp. I look forward to a long, sybaritic soak, come tomorrow afternoon, in the hot spring that lies a half-day's walk down the valley. But the thought of leaving already saddens me. I'm not ready for the trip to be over.

As Bob Marshall wrote at the conclusion of an extended Brooks Range sojourn, "In a day I should be in Fairbanks, . . . in a week in Seattle and the great, thumping, modern world. I should be living once more among the accumulated accomplishments of man. The world with its present population needs these accomplishments. It cannot live on wilderness, except incidentally and sporadically. Nevertheless, to four human beings, just back from the source streams of the Koyukuk, no comfort, no security, no invention, no brilliant thought which the modern world had to offer could provide half the elation of the days spent in the little-explored, uninhabited world of the arctic wilderness."

Nearing the end of his three-week adventure, Krakauer luxuriates in a hot spring encircled by snowy peaks.

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Israel *October 17-29*

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Mexico's Copper Canyon *November 11-18*

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Christmas in Canterbury and New Year's Eve in London *December 22-January 2*

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Malaysia-Thailand *January 20-February 9*

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London Performing Arts *February 5-15*

Windward-Leeward Islands Cruise *February 14-24*

India Wildlife *February 23-March 12*

Belize-Tikal *February 24-March 4*

Australia-New Zealand *March 1-12*

Guatemala *March 5-18*

Costa Rica *March 9-21*

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Listings continue on page 81

THE LATEST WORD ON SMITHSONIAN TOURS AND LEARNING ADVENTURES

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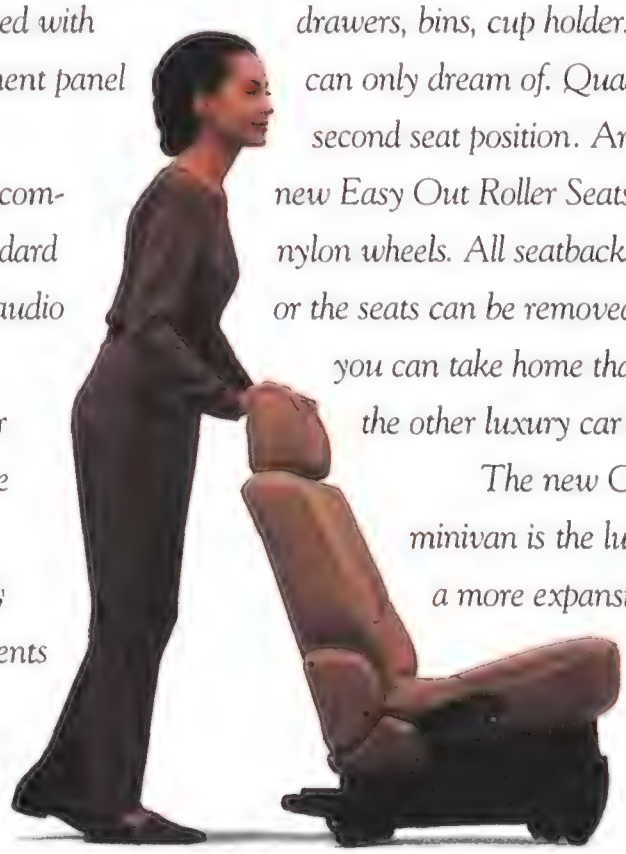

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By Sarah Wernick

It takes just one good line to create a catchy cartoon

Not a wavy line, not a straight line, but a punch line, and many cartoonists depend on writers to provide the inspiration they need

The family farm is rented out now, but Al Batt hasn't shed the dairyman habits of his father. He's up before the sun, "cursed," as he puts it, "with whatever it is that causes you to rise at an ungodly hour." From 5 to 8 every morning, seven days a week, he sits at his desk listening to Minnesota Public Radio and scanning the *Wall Street Journal* or a book. Occasionally a phrase strikes him, and he writes it on a pad. Today's crop includes "adopt-a-highway program," "one out of every six members of Congress is a millionaire" and "extra-crispy chicken." From time to time after the sun comes up, he swivels to check for birds or deer in the backyard that he's gradually turning into wildlife habitat. At some point he returns to the list and writes: "Man looking at invoice says: 'Just my luck to have adopted a highway that's in medical school.'"

Batt is a cartoon-caption writer, one of the best. Though he is unknown outside the dwindling circles of his curious profession, chances are you've seen his work. Indeed, if you're in the habit of displaying apt cartoons, a Batt creation might be hanging on your fridge.

Few outsiders realize—though it has long been an open secret in the cartoon business—that many artists buy ideas, on occasion if not regularly. Some simply prefer drawing to writing. But even those who normally produce their own gag lines might turn to caption writers if they hit a dry spell. Or they may need a helping hand because (to give a real-life example) a trade magazine has requested 20 cartoons that would draw a chuckle or even a guffaw from a turkey breeder.

Raised on a dairy farm in Minnesota, Al Batt has been incubating cartoonable ideas for more than two decades.

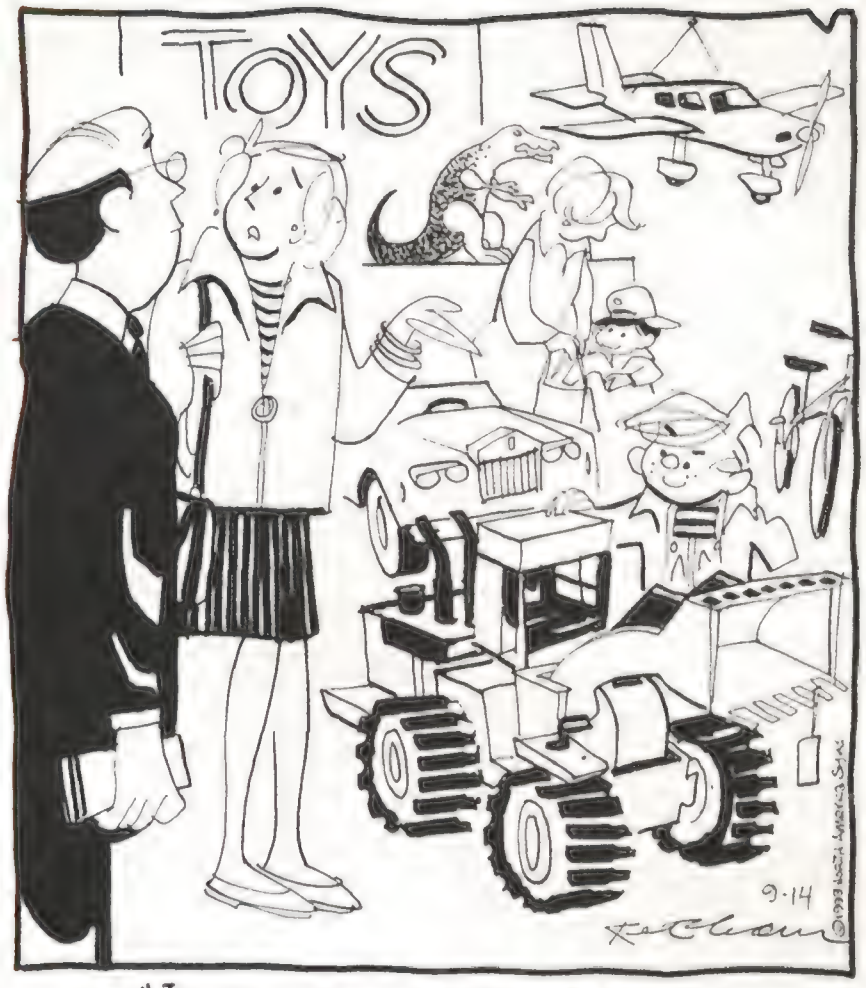
Hank Ketcham, creator of *Dennis the Menace*, says, "Any professional humorist is out of his mind if he doesn't surround himself with talented writers. Otherwise you get to the bottom of your own barrel too quickly." Currently, most of Ketcham's daily *Dennis* gags are written by Batt. "He gives me ideas I'd never think of."

The top captioners are astonishingly prolific. In a week of three-hour sessions, Al Batt comes up with 150 cartoon ideas for the 30 artists with whom he currently

He is the source of many gag lines for Hank Ketcham's *Dennis the Menace*, including the one illustrated above.

works. Under their signatures, his lines appear in every major cartoon outlet, including the *New Yorker*, the *Wall Street Journal*, *Parade*, *Omni*, *Good Housekeeping* and *Playboy*, plus numerous trade journals.

Rex May, who's been called the king of cartoon gag writing, produces 150 to 200 captions a week. Most are written during three 90-minute sessions at a karate dojo near his Indiana home, where he waits while his wife, Jean, and their 12-year-old son, Bjorn, attend class. Sitting on a metal folding chair in the stark second-story loft, oblivious to guttural shouts and bodies slamming onto a mat just inches away from his feet, May scribbles captions on a yellow pad at a rate of up to one per minute.



"IF HE BREAKS IT, I'VE BOUGHT IT.
IF I BUY IT, HE BREAKS IT."

In the glory years of magazine cartooning, which lasted from the 1930s through the '60s, it was possible to earn a living as a caption writer. That's no longer true, except for the handful of writer-partners who collaborate on popular syndicated comic strips. The cartoon marketplace shrank. Weekly outlets, such as *Collier's*, *Look* and the *Saturday Evening Post*, folded in the '50s, '60s and early '70s, and many surviving publications curtailed their use of humorous art. Also, new cartoonists reduced their reliance on captioners.

Lee Lorenz, cartoon editor of the *New Yorker* since 1973, says, "The biggest change over my career—I started here as a cartoonist in 1958—is that the generation of cartoonists that came to prominence in the '60s and '70s all do their own writing. For the first 25 years of the *New Yorker*, captions were nearly always written by people other than the artists—writers on the staff or outside gag writers."

At the *New Yorker*'s now legendary Tuesday art meetings, chronicled by James Thurber and others, editors reviewed not only artists' sketches but also submissions from gag writers and nonpreferred cartoonists. "They would buy your idea for eight or ten dollars and give it to one of their regular artists," recalls Hank Ketcham,

Photographs by Bill Ballenberg

Harald Bakken, a history professor in Massachusetts, has written gags used by about 100 cartoon artists.

At home in Indiana, Rex May writes cartoon gags for others and himself. He draws under the name "Baloo."

who was a nonpreferred cartoonist in his pre-*Dennis* years. "They would say, 'This is a Helen Hokinson gag; this is a Bill Steig; this one Peter Arno should do.'"

The distinctive style of the *New Yorker* cartoon owes as much to the caption writers of those early years as to the artists, according to Lorenz. "E. B. White should get credit for helping establish the tone," he says. "One of his functions here was sharpening gags, and he was sensationally good at it." White also wrote many captions, including the line immortalized in a drawing by Carl Rose: a mother says, "It's broccoli, dear," and her daughter replies, "I say it's spinach, and I say the hell with it."

The most influential and successful of the *New Yorker*'s freelance gag contributors was Richard McCallister, who continued writing until shortly before his death in April at age 86. McCallister supported himself and his family in Connecticut for 50 years on the proceeds from *New Yorker* cartoon captions. "I didn't need another job," he said. One week, when he arrived at the *New Yorker* to deliver his latest submissions, he discovered that six of the cartoons in the current issue had been drawn from his gags. Long after the magazine itself stopped buying ideas from gag writers, McCallister continued to sell captions to individual artists.

His career is not likely to be matched, even by writers who don't limit themselves to a single magazine. Current demand provides only part-time employment for at most 200 or 300 captioners. Some find supplemental humor gigs, such as writing funny greeting cards or slogans for "social expression" products like T-shirts or coffee mugs. Al Batt has a separate career as an insurance agent. Rex May draws his own cartoons under the name "Baloo," and he's a part-time postal clerk.

Hartland, Minnesota (pop. 270), where Al Batt grew up in the 1950s and still lives today, is a long way from the Manhattan boardrooms and cocktail parties in which so many *New Yorker* cartoons are set. It's a place where you can get your name in the local newspaper by inviting your sister-in-law for Thursday supper or locking yourself out of your car. Unlike Woody Allen and other angst-driven comics, Batt enjoyed a happy childhood. His sense of humor was nurtured by a mother who had "the best laugh in the world" and an older brother who kept him supplied with *Mad* magazine.

Batt's first comical captions, written when he was still in high school, were entries for the Sunday "Foto Funnies" contest in the St. Paul *Pioneer Press*. "They'd have a clip out of a movie, and you'd send in a caption," he explains. There were five winners each week, and when a *Pioneer Press* editor noticed that Al Batt's name had been on the list nearly every week for two years, the paper ran a story about him. Then someone told him he could sell cartoon ideas. Batt learned the basics from the classic book on the subject, *Cartoonist's and Gag Writer's Handbook* by cartoonist Jack Markow.

As I See It, #23 in a series
Mary GrandPré, Illustrator
John Harvey, Photographer
"My, How Time Flies!"

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For an enterprise that traffics in whimsy, gag writing's rules of the road, as codified by Markow, are surprisingly rigid. Captions are typed on 3-by-5-inch index cards and mailed to cartoonists in batches of ten or more, along with a stamped return envelope. The artist keeps any that seem promising and sends back the rest. If a resulting cartoon is sold, the writer gets a cut, usually about 25 percent. This share could amount to pocket change if the cartoon appears in a small-circulation newspaper, or a low-three-figure check if it's placed in a premier market like the *New Yorker* or *Playboy*.

Since ideas that have been passed over by one cartoonist may be accepted by another, Batt and May keep hundreds of gags in circulation. The paperwork—keeping track of gags written, who's seen them, captions held by cartoonists, and cartoons that sell—is onerous. "I used to keep a lot better records," says Batt. "But I hated doing it, and I figured out that the benefits didn't override my dislike." In a corner of his basement is a storage unit five and a half feet high, plus a stack of eight large shoeboxes, all packed with gag-stuffed envelopes—about a quarter of a million gags, sold and unsold. Batt says with a sigh, "I always think there's something I should do with them, but I don't."

Rex May, whose garage and work shed contain a similar accumulation ("I have a whole shoebox of unsold Gerald Ford gags"), has been entering his captions into a computer database for four years—mainly so he can check that a new gag doesn't inadvertently duplicate an earlier one. He estimates that it would take six months of doing nothing else to type the backlog into the database. And why bother? It's much more fun, he says, to come up with new captions.

Back in the golden years when the cartoon business was centered in New York City, artist and writer might get together to go over ideas. James Reid Parker, a *New Yorker* writer, met weekly with Helen Hokinson, whom he supplied with captions for her suburban-matron cartoons. Richard McCallister worked directly with several artists. He recalled, "I'd spend two, three hours a week in Peter Arno's studio. We'd talk about what was happening in the world, what we thought we could satirize."

Hank Ketcham, creator of *Dennis the Menace,* says Al Batt provides ideas he would never think up himself.

Randy Glasbergen, who writes and draws *The Better Half,* started producing cartoon gags as a teenager.

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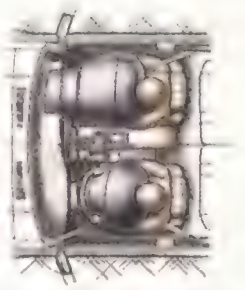

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One of Arno's most famous cartoons was inspired by an experience McCallister had at a newsreel theater in the 1930s. "I could hear hissing," he said. "I thought it must be one of the radiators. Then I looked around, and I realized people were hissing Roosevelt." In the cartoon version, two couples, obviously well-to-do, stand outside a mansion and call through a window to their counterparts inside: "Come along. We're going to the Trans-Lux to hiss Roosevelt" (p. 90).

Cartoonists and gag writers are rarely brought together by art editors, as McCallister and Arno were (an exception is on the page opposite). A small number of cartoonists solicit gags via professional publications. Usually contact is initiated by would-be gag writers who track down published artists and submit ideas. (Some cartoonists won't admit to using gag writers, not because they're embarrassed at needing assistance, they say, but to avoid being inundated with unusable material.)

Human contact is rare these days, even for enduring partnerships. Harald Bakken, a 21-year veteran of the business who's now semiretired from gag writing, has met only four of the approximately 100 artists with whom he's worked. As a beginner he received valuable instruction from Randy Glasbergen, a widely published cartoonist who sent back helpful suggestions along with rejected gags. "He was very specific," Bakken recalls. "He'd explain, 'This won't work because . . .' or 'This is great because . . .'" For months Bakken had no idea that his mentor was a precocious teenager who'd made his first sale to a national magazine at age 15. Then one day Glasbergen wrote, "Congratulate me! I just graduated from high school."

Personal relationships with other caption writers are uncommon too. There's no professional association; the closest thing to a trade journal is *Gag Recap*, a monthly newsletter with a few hundred subscribers. *Recap*, founded 40 years ago and published by Al and Jo Gottlieb since 1961, lists hundreds of cartoons that appeared in major outlets during the previous month. Descriptions are terse, with as many as 50 cartoons summarized on a single page. To the Gottliebs and their readers, a parched man clad in tatters who's searching on his hands and knees for an oasis in the sand is known simply as "Desert crawler."

Anonymity precludes public acclaim for gag writers. What passes for applause is the heady experience of finding their creation tacked to an office bulletin board or supermarket cash register. When Harald Bakken took a fiction-writing course in which everyone showed examples of their work, he passed around some cartoons. He says, "I realized it was the first time I'd ever heard a laugh at my captions, and I thought, Wow!"

Every year or so, Rex May and Al Batt—who have never met—break the isolation with a telephone chat, "like Pavarotti calling Domingo," to use May's wry simile. What do gag writers talk about? "Of course if there's ever anybody that doesn't pay, that's the first thing," says Batt. "But there are very few of those."

Harald Bakken—who has a Harvard PhD and a noncaptioning life as a history professor at the University of Massachusetts, Lowell—has given serious thought to humor in general and cartoons in particular. "A magazine cartoonist is supposed to get a laugh from a total stranger in under seven seconds," he observes. "No one else who professionally tries to make people laugh is expected to do it quite so quickly." Moreover, the artist must communicate under less-than-ideal conditions. As Bakken points out in *The Cartoonist's Muse: A Guide to Generating and Developing Creative Ideas*, a book he wrote with longtime *New Yorker* cartoonist Mischa Richter, cartoons are viewed not in a gallery but in a doctor's waiting room or perhaps (to use Bakken's delicate description) "in the smallest room of the house."

It all starts with a premise. Says Randy Glasbergen, "It's not as difficult to be funny as it is to find something to be funny about. Sitting there with a blank piece of paper is hard, but once you zero in on penguins it's easy." As a beginning cartoonist, Glasbergen challenged himself by selecting random objects on the street and trying to find something funny about them. "I would look at a crack in the sidewalk and think: a family of ants would take pictures of themselves next to it, like the Grand Canyon. Or a nurse would put a Band-Aid on it."

Almost anything can be a cartoon premise. Rex May says, "I've heard that a general can't play golf without thinking about where he'd put tanks. I see everything in terms of turning it into cartoons." Glasbergen, who once spent a week with May when the two were working

The author is a freelance writer based in Brookline, Massachusetts. She retired from cartoon captioning after a single appearance in New Yorker *magazine.*

Fred H. Thomas / Richard McCallister

"For goodness sake, George. Nobody cares about the Knicks and Celtics! What's the latest Princess Di-Charles score?"

Martin J. Bucella / Harald Bakken

"The radio said that we'll be hit by a hurricane, a major earthquake and a sixty-foot tidal wave, after which a delegation of Martians will demand that the Earth accept their domination or be destroyed and you can never again claim you're able to read the paper and listen to me at the same time."

Bo Brown / Rex May

"Hmmm—Here's an article about a woman who murdered her neglectful husband."

John P. Sandy / Al Batt

"May I have the divorce section?"

The setup: ask four writers to come up with a line about a man and a woman at breakfast. Then ask four artists to do their thing. The results show how such collaborations can breathe new life into even the hoariest of cartoon clichés.

"Come along. We're going to the Trans-Lux to hiss Roosevelt."

One of Richard McCallister's best lines inspired Peter Arno's cartoon that ran in the *New Yorker* in 1936.

Drawing by Peter Arno; © 1936, 1964 The New Yorker Magazine Inc.

on a project proposal, confirms this. "Rex never put down his notebook; it was chained to his belt. If we were watching television and an ad for Grecian Formula came on, Rex would write a gag about it. Thank goodness," he adds, "we didn't have yeast infection commercials back then."

Though few subjects are taboo, a cartoon premise is limited by artistic considerations. Rex May, who sometimes receives submissions from writers who have seen his Baloo cartoons, says with exasperation, "A guy sent me a gag that started 'Man to brother-in-law.' Now, how the hell do you draw a brother-in-law?" Many artists shun ideas that require elaborate illustrations, such as the inside of a cathedral or a full symphony orchestra. "I don't do galley slave gags," says May. "I'm not going to draw a ship with 50 oars."

Sometimes the premise for a gag line is supplied by the cartoonist. Doug Sneyd, an artist on contract with *Playboy* who regularly uses ideas from May, recalls, "*Playboy* wanted some Christmas gags, so I called Rex one morning. By noon he'd come up with seven or eight, and they wound up buying three." In one of them a lecherous Santa pauses to reflect: "I was going through that 'naughty or nice' routine for the millionth time, when suddenly it hit me: Who am I to judge?"

The leap from Christmas to a self-questioning Santa is inspired. But professional gag writers don't sit around waiting for inspiration to strike; they use techniques to "work" the premise. Harald Bakken likes to demonstrate with the familiar story of the princess who kisses an enchanted frog and turns him into a prince. "First think about the frog," he suggests. "Perhaps he has political views on monarchy. What do his friends and his parents think about this? Consider the princess. Is this her first go at kissing a frog? Move forward in time, after the wedding. The couple could have in-law problems. 'Dammit, Gertrude,' says the prince, 'you knew when you married me that my mother was a frog.'" Bakken once sat down and spun 25 captions from this fairy tale.

"I'm number four on my own list"

Because so many cartoons are based on stock situations—shipwreck survivors on a tiny island, a lawyer addressing a judge, a child bringing home a report card—most captioners write only brief descriptions on the gag slips they send to artists. Bakken says, "For a while, I made a game of trying to get the non-caption part down to as few words as possible. Instead of something like 'Wife says to husband:' I'd just write 'Wife:' since that implied a domestic setting and the whole works." Others, including Rex May, add a sketch. "I put the facial expressions in just the way I want them, which is very hard to describe in words," says May.

When the week's output is ready for mailing, it's time to decide what goes to whom. In general, top-selling cartoonists get the first look; others see the leftovers. "As 'Baloo,' I'm number four on my own list," May admits. He currently sends ideas to about 20 artists. Though he'd like to encourage beginning cartoonists, he's reluctant to work with them. "The postage is murder," he says. "It costs me at least a buck to mail a batch to somebody. A new kid can be a great cartoonist, but can he sell? Can he take the rejection? Ninety percent of people can't, and after six months they quit."

Certain ideas—such as Batt's captions for *Dennis the Menace*—are created for particular artists. Or the gag itself might suggest a certain cartoonist. Bakken recalls, "I once wrote a cartoon with a husband and wife arguing. She says, 'Let's face it, Ralph. The only time we meet each other's needs is when we fight.' It was a very grim idea. I thought immediately: That's for Joe Mirachi. He had a very mordant sense of humor. I knew he'd

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take it and sell the cartoon to the *New Yorker*—which is what happened."

Rex May comments, "Some gags are best drawn by me or somebody else who doesn't draw ears on people unless they need them; others are best drawn by Doug Sneyd or some other fine artist." He cites a caption that he wrote for a Sneyd cartoon: a woman turns down a marriage proposal, saying, "It would never work, Rodney. You're a Benny Hill person and I'm a Monty Python person." Says May, "If I did that, it would be mildly amusing. But Doug drew it elaborately, with a beautiful woman and a beautiful setting, and the absurdity worked so much better."

A gag's content may rule out certain artists. Some won't accept X-rated material; others would have little interest in a caption geared to a trade journal. Says Bakken, "One cartoonist told me, 'Never ever send me horse gags; I can't draw horses.' Another said, 'Don't send me anything that has to show the inside of an automobile under the hood. I cannot draw that.'"

Because most freelance cartoonists sell to many publications, the submission process can take a long time. Says Batt, "Bo Brown, a wonderful cartoonist and a wonderful guy, will send you a check for a gag you wrote 15 years ago. He never gives up. He'll say, 'Here—I sent this to 946 places and somebody finally bought it.'"

Ideally, the final product delivers more than a tickle. Rex May reflects, "I doubt I'd be doing this if I didn't have convictions. I like to make people laugh—but after they've laughed, I want them to think about why they laughed and to reexamine how they've been looking at things. If it's funny, there's something serious at base."

In a portrait taken shortly before his death in April, Richard McCallister remembers 50 years of laughs. The most successful of the *New Yorker*'s freelance cartoon captioners, he once had six gags in a single issue.

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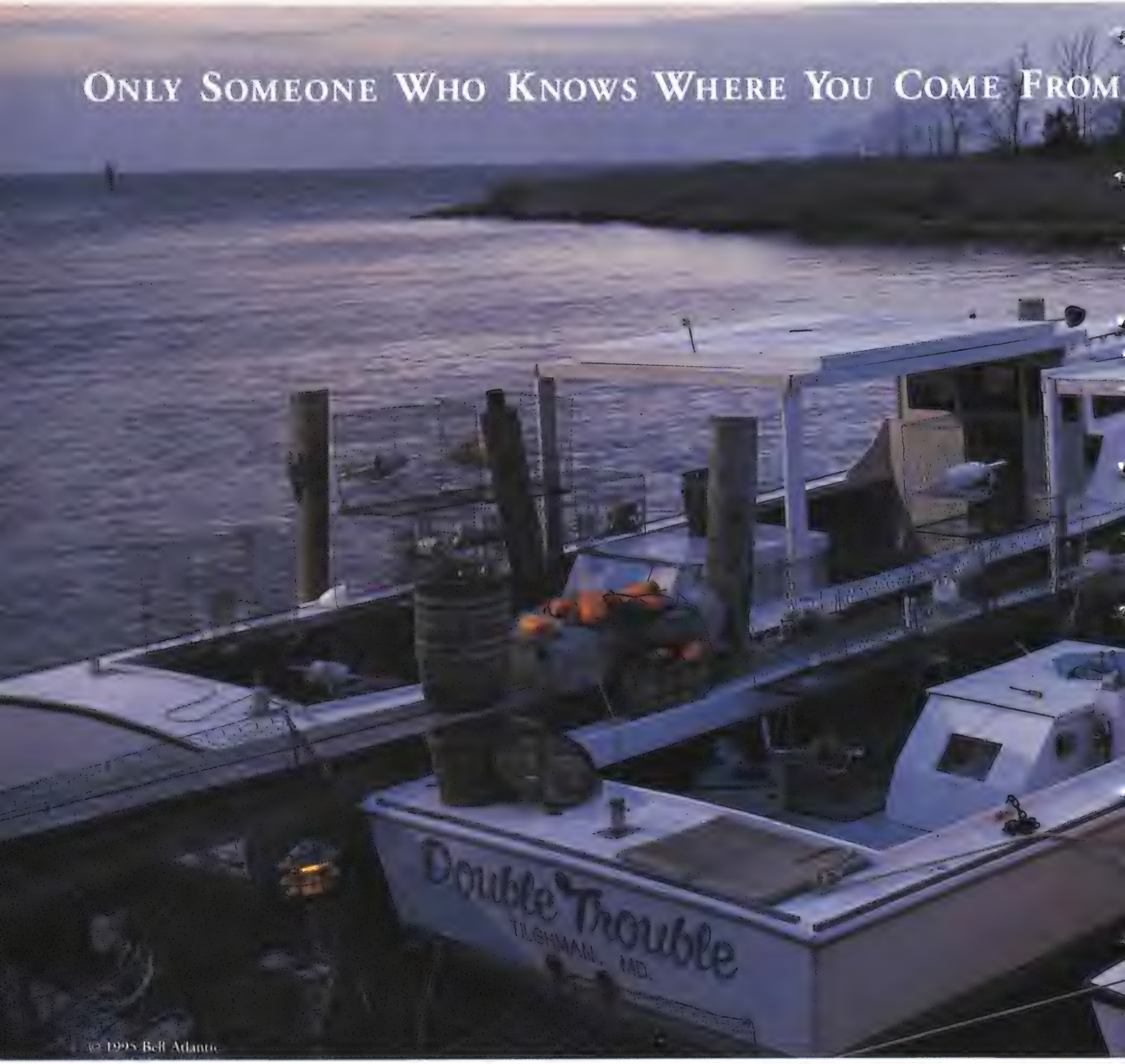
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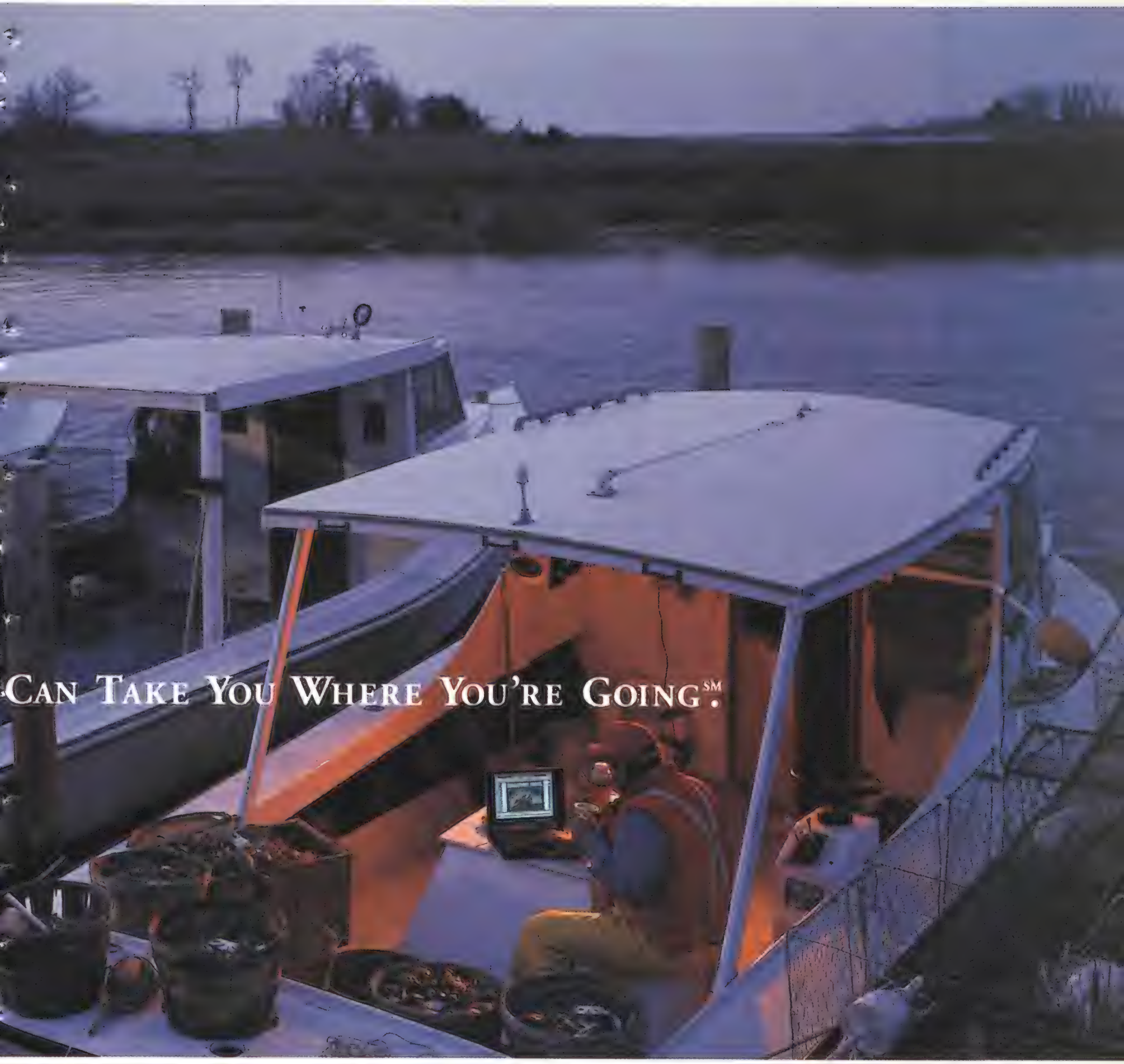

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By Bennett Schiff

For Mondrian, art was a path to the universal

Through trial and error, he moved lines and primary colors into harmony, only to start all over in his last years of life

When I stayed at the Mondrian in Los Angeles during its opening celebrations in 1984, the hotel had less to do with its namesake than with the entrepreneurial enterprise of its owners. The fact that so pure, ascetic and astringent an artist should have made a mark on Sunset Boulevard, of all places, has something to say about the effect that Mondrian has had on a world so far removed from his art. And it hardly stops there.

Piet Mondrian's influence has extended for half a century, since the artist's death in New York in 1944, into our daily lives. In architecture, design, clothing, Mondrian is present whether we know it or not. Not that long ago, fashion designers were turning out jackets, skirts, dresses and bathing suits divided into bright red, blue and yellow rectangles—the primary colors used as if they had never before been seen. Which they had not been in quite that way. The style ran its course and disappeared. But the art remains.

Fashion was hardly what Mondrian had in mind when he thought and dreamed of a universal art—pure, spiritual and transcendent. It was, in the end, to be so fine that, having induced a radiant harmony and balance throughout society, the need for painting itself would no longer be necessary.

In fact, Mondrian is so much with us, consciously or unconsciously—and it is the unconscious awareness of art that he pursued all of his life—that it is startling to realize he has been dead for half a century. He seems so much more modern than that; part of the continuing present, the tense that is never out of date.

© 1980 Arnold Newman

Last year in the Netherlands, his birthplace, they raised Mondrian to the level of Rembrandt and Van Gogh, designating 1994 the Year of Mondrian. The celebration was marked by a number of nationwide exhibitions and observances. Mondrian, you came to realize as you went about the country tracking them down— from the consummate retrospective exhibition at The Hague's Gemeentemuseum, to a full-scale re-creation in Amsterdam of his Paris studio, to the cottage in Amersfoort where he was born in 1872—was one of the basic pivots on which 20th-century art turns. It hardly seemed necessary to commemorate him in his native country. All you needed to do was look out the train window as building after building stood proudly in that flat land, proclaiming his spirit and idea. And yet it made you sit up when you saw, painted on the side of a building in The Hague, the dictum: "Art has to be forgotten. Beauty must be realized . . . Mondrian."

The timing couldn't be better, then, for the compelling review of his work that will be at the National Gallery of Art in Washington, D.C., with support from Heineken USA and the Shell Oil Company Foundation, from June 11 through September 4. It will then proceed to the Museum of Modern Art in New York, where it will be on view from October 1 through January 23, 1996. Essentially the same exhibition that opened in The Hague last December, it was assembled from museums and collections in Europe, the United States and Japan by a group of distinguished scholars who, for a change, could not be more clear in dealing with a difficult subject. Mondrian, for all the clarity of his work, was all theory in back of it. The catalog may be unsurpassed for the quality of its reproductions and the lucidity of its essays, the work of the art historians Angelica Zander Rudenstine, Yve-Alain Bois of Harvard, Hans Janssen of the Gemeentemuseum, the Mondrian specialist Joop Joosten and John Elderfield of the Museum of Modern Art.

There probably isn't in all of art history a more logical and orderly progression of an artist's developing ideas than Mondrian's; it extended in a steady line from 1912, when he took up Cubism, to his final days. That does not, however, mean that things came easily to him. Although his life was quiet, his manner gentle, warm and modest, and his dress sober, his spirit was daring and profound, and his art radical. The writer John Russell has pointed out that "in looking at a Mondrian of no matter what period it is important to remember that he was a man of almost angelic purity, a high-souled mystic who put up uncomplainingly with a long lifetime of isolation and near-penury."

In 1942 photographer Arnold Newman caught Mondrian among the ordered grids of his New York City studio.

Haags Gemeentemuseum, The Hague

Mondrian's *Blue Tree*, one of a series of tree pictures that chart his early evolution, was painted in 1908. In that year, Mondrian made a major shift toward the expressive use of color and emphatic use of line.

Indeed, his art, which was his life, was a continuing battle, an exhausting search for peace and a universal harmony and balance. It was very hard work, a kind of battlefield. His life began quietly enough in the town of Amersfoort, some 25 miles southeast of Amsterdam, where his father, Pieter Cornelis Mondriaan, an ardent supporter of the Dutch Reformed Church, was principal of a Protestant elementary school. An accomplished lithographer, Mondriaan senior gave his son, who was named after him, lessons in drawing as well as in religion and comportment.

The boy's path was set early. Frits Mondriaan, an uncle who was a professional artist, gave his young nephew lessons and guidance. Mondrian (he dropped an *a* from his name as being excessive when he got to Paris), called Piet (PEET), was the second of five children. He completed primary school at the age of 14 and, with the encouragement of his father, learned and taught drawing. In 1892, at age 20, he moved to Amsterdam where he studied for two years at the Rijksacademie.

Mondrian's life in Amsterdam was typical of a young professional artist's. He made copies of paintings in the great Rijksmuseum and put them up for sale; he showed with local art associations; he painted a ceiling of angels for a client's home. Twice he applied unsuccessfully for a Prix de Rome. His life as a poor artist had begun.

Although in later years his art and writing, which were extensive, were known and highly respected by artists and critics, Mondrian never made any real money. There were many times when he couldn't pay the rent for a heatless studio, and he had to resort to writing letters to friends asking for funds, the most bitter thing for a man of his courtly pride to do. At one point he thought seriously of giving up painting entirely and

Bennett Schiff, former Art Editor of SMITHSONIAN, *has written about the artists Amedeo Modigliani (January 1994) and Willem de Kooning (April 1994).*

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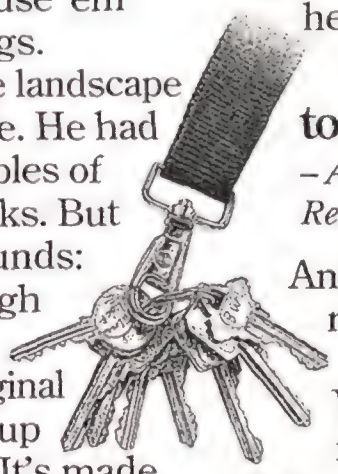

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Haags Gemeentemuseum, The Hague

Mill in Sunlight (1908) drew barbs when exhibited; its sky, said one critic, had "holes as in a Swiss cheese."

Solomon R. Guggenheim Museum

Mondrian's paintings had become abstract by 1913, as in *Tableau No. 2*, which shows influence of Picasso.

going to work on a farm. When you consider Mondrian's cast of mind, life on a farm would not have been so farfetched an idea as it might seem at first. Interested in the universality of spirit advanced by the Theosophical Society (SMITHSONIAN, May 1995), he joined that reflective and mystical group in 1909. He also befriended the Dutch philosopher M.H.J. Schoenmaekers, whom he met in 1915. Working close to the earth would keep his body busy while his mind speculated on the problems of spirit and philosophy that so much concerned him.

Mondrian combined the idealism and spiritualism of Theosophy with Schoenmaekers' belief that it was possible, by intense concentration, to come to a spiritual comprehension of the Universe through mathematics. That knowledge, the philosopher thought, would enable the believer to live in balance and harmony with the Universe and all within it, including Man, society and nature. And with oneself as well.

You might think, then, that Mondrian's work would be a diagrammatic, calculated sort of thing, but that is not how it was. Mondrian depended utterly on instinct in determining where he put a line, doubled it, moved a color block, widened or narrowed a space. Since each move changed everything else in the painting, he could go on and on until he had reached some form of resolution. Within a rectangle, to be filled only with straight lines, right angles, three pure colors and white and black, was a limitless space that could be changed without end, in a hunt for just the right combination. The way to find it was in the rhythm, balance and harmony that could be placed on the flat surface, just so.

Then, inevitably and always, he went on to another problem, searching for still another solution, going on as far as he could until the very end. Even when that came, at the age of 72, there were two startling works that predicted an entirely new direction in his art—*Broadway Boogie Woogie* (p. 107) and, on his easel, the unfinished *Victory Boogie Woogie*. It had taken Mondrian all of his life to get to the point at which he could, in effect, throw out all he had done before. With these paintings, he discarded the solid black lines that had for so long delineated his work, replacing them with blinking progressions made up of solid-color lozenges interspersed with white and gray blocks. And with *Victory Boogie Woogie*, he stood the square canvas on one of its corners to make a diamond, creating within it a work of pulsating vitality and dynamic harmony.

The exhibition shows clearly, phase by phase, how Mondrian got there, beginning with his paintings from 1907—lines of silhouetted trees, a skyscraper in pink and raspberry against a solid blue sky, a red blank-faced windmill in a dusty blue field. There are traces here of symbolism and Fauvism. A windmill in rust red, chrome yellow and pale blue seems to have come out of late Van Gogh in its writhing intensity (above). Mondrian's early landscapes

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In his 1965-66 collection, fashion designer Yves Saint Laurent paid homage to Mondrian's paintings.

are moodscapes; it never seems to have been his intention to record a scene so much as to order his sensations.

The advent of Cubism in France, which is to say Picasso and Braque, fell on Mondrian like a beam from heaven, and it was this more than anything else that drew him to Paris in 1912. There, he began to take apart the appearance of things. Perspective slipped away, eventually to be discarded forever. The colors grew muted—lavender, rose, the subtle shadings of gray and the smudgy earth tones that Picasso and Braque employed in their early Cubist masterpieces.

After two years in Paris, Mondrian went home to visit his ailing father; he remained there during World War I, continuing his explorations of abstraction. Piers extending into the ocean in that water-locked land became studies of the horizontal and vertical, which he saw as a framework for comprehending the Universe.

Mondrian returned to Paris in 1919; he would remain there until World War II sent him to London and then New York, where he applied for American citizenship. It was during that second sojourn in Paris that Mondrian came into his own. By then, through his long and radical essays in *De Stijl*, a pathfinding magazine conceived by Theo van Doesburg, he had become well known in the art world. His paintings had been collected in the Netherlands, Switzerland, Germany, England and the United States. His essays were published in the leading avant-garde journals of Europe. He had a pronounced effect on the Bauhaus group in Germany, the predominant architectural force of the century.

Yet, he was still very poor. In his large-minded way, Mondrian understood that paintings such as his were a hard sell. In time, he thought, people would catch on, catch up. Meanwhile, to pay the rent in the early 1920s, Mondrian painted flowers, investing them with a kind of delicate force that reminds one of the flowers of Van Gogh and the botanical studies of Dürer. He considered these paintings as being another field entirely. "If buyers demand naturalistic art," he wrote, "then the artist can use his technical skills to produce it, but it remains *distinct* from his own true work."

Of his true work the Baroness Hilla Rebay, who visited him along with the critic Félix Fénéon and the painter Laszlo Moholy-Nagy in 1930, wrote: "He hardly paints. He constructs 2 or 4 squares, but he is a wonderful man, very cultivated and impressive. He lives like a monk, everything is white and empty, but for red, blue, and yellow painted squares, that are spread all over the room of his white studio and bedroom. He also has a small record player with Negro music. He is very poor, and already 58 years old. . . ." Rebay, who later directed the forerunner of the Guggenheim Museum in New York, bought one of his paintings "(for myself, for nobody will like it . . .) I love it but it was mainly in order to keep the wolf from the door of a great, lovable man. . . ."

Those who knew Mondrian well, however, had a different story to tell. He was a fervid dancer, a lover of jazz, and a strong fan of Duke Ellington, Louis Arm-

Collection Beyeler, Basel

The dresses were inspired by earlier works such as *Composition with Yellow and Blue*, from 1932. With its vertical and horizontal black lines on a white field, and primary colors, it is in Mondrian's classic style.

strong and Josephine Baker. He took with him, wherever he went, a little gramophone and his prized collection of jazz records. In New York he discovered boogie-woogie, which he called "enormous, enormous." In fact, jazz was one of the reasons Mondrian loved New York City when he eventually moved there; he had written a long essay in Dutch on its importance and its relevance to his art.

In Paris, Mondrian's favorite recreation was to go out in the evenings to cafés where he could dance without inhibition, fully absorbed in the music. An admirer of Fred Astaire, he saw Astaire's dancing as high art as well as delectable entertainment; Mikhail Baryshnikov, a half-century later, would agree. When Van Doesburg wrote him from Germany that he and his wife, Nellie, were learning the two-step, Mondrian, who had already mastered that little shuffle, answered that he himself was learning the shimmy. And when, in 1926, he heard that there was talk of banning the Charleston in the Netherlands because of the dance's "sensuality," an impassioned Mondrian responded, "If the ban on the Charleston is enforced it will be a reason for me never to return."

Meanwhile, Mondrian's two-room studio at 26, rue du Départ in Montparnasse had become famous. Lit by gas fixtures and heated by a coal-burning stove, it was so outstanding a space that modernist artists and thinkers made pilgrimages to it. A young Alexander Calder, brought to the studio by the architect Frederick Kiesler and already fascinated by the idea of art in motion, suggested that Mondrian rotate the colored rectangles on the white walls. To which Mondrian, in his dry and pungent way, responded that his paintings were "already very fast." Calder later wrote, "This one visit gave me a shock that started things." The things, of course, are his mobiles, which are landmarks of 20th-century art.

Last year, Mondrian's studio was reconstructed—even to the views from his windows—in the cavernous Beurs van Berlage, a concert and exhibition hall in Amsterdam. After climbing a scaffold 28 feet high, one could get a diagrammatic view of the space from above. Then, from ground level, a ramp led right into the studio itself, exactly the same size and with the identical furnish-

Haags Gemeentemuseum, The Hague

Mondrian's charcoal self-portrait dates from 1908-09, around the time he joined the Theosophical Society.

ings of the original. It was a brilliant idea, since Mondrian had made his entire studio into a work of art by painting both rooms of the studio white, building simple, rectangular, black furniture and placing rectangles of pure primary color—blue, red and yellow—at balanced and meticulously positioned places on the walls. He moved into a painting of his own creation and worked right there, inside it.

Later, in New York, he would do the same thing. As before, his studios at 353 East 56th Street and then at 15 East 59th Street would become gathering places for artists, poets, composers and writers. "I think that the logical outgrowth of painting is the use of pure color and straight lines in rectangular opposition; and I feel that painting can become much more real, much less subjective, much more objective, when its possibilities are realized in architecture," he wrote. "I have studied the problem and practiced the approach with removable color and non-color planes in several of my studios in Europe, just as I have done here in New York."

An impassioned pacifist who wrote that the first rule of life was not to take it, Mondrian had sailed for England in 1938 as World War II approached. Once there, a group of artists including Ben Nicholson, Barbara Hepworth, Naum Gabo, Henry Moore, Paul Nash and the writer Herbert Read made him welcome. The following year, American abstract artist Harry Holtzman, Mondrian's good friend and eventual executor, sent him money and paved the way for him to come to America. In September 1940, after a bomb exploded near enough to shatter the windows of his London studio, he left for New York. Mondrian fit right in; he later called his New York years the happiest of his life.

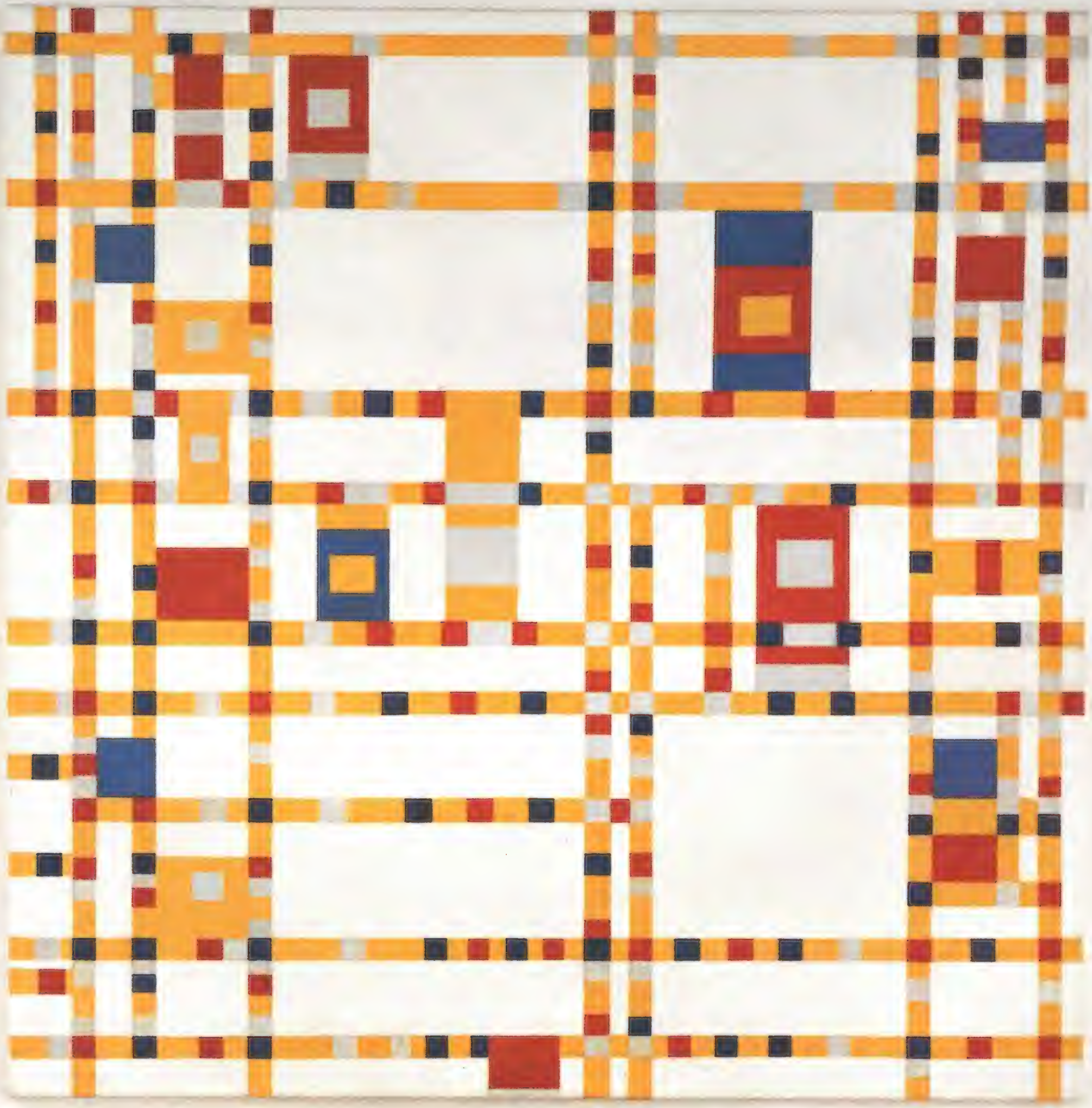
Soon after he arrived in New York, Holtzman writes, Mondrian had said, "'Tell me Harry, why don't I see prostitutes on the streets here? . . . Don't misunderstand me,' he laughed; 'it has been some time since I've had such a need, but why is it?'" Holtzman asked Mondrian why he had never married. "'Well,' answered Mondrian, 'to tell you the truth, I never could afford it. . . . Once I did live with a woman for a time, but when we differed and decided to separate, she took all the furniture.'" When Mondrian died, Holtzman reports, the Dutch press mentioned three women "who proudly claimed to have been his very intimate friends." He had been engaged to be married just before he left for Paris the second time but wrote to a friend, "I almost got married . . . but fortunately I realized just in time that all that beauty was merely an illusion."

One notable woman Mondrian befriended was heiress, collector and gallery owner, the colorful, freewheeling Peggy Guggenheim (SMITHSONIAN, July 1986). She recalled the Mondrian of his New York days in her autobiography *Out of This Century*. "One evening I went to Piet Mondrian's studio to see his new paintings and hear his boogie-woogie records," she wrote. "He kissed me and I was surprised to discover how young he still was at 72." Mondrian was a frequent visitor to Guggenheim's gallery to see the work of his modernist contemporaries and to bring in his own work, wrapped in white paper. Guggenheim remembered, "When I once asked him to clean one of his own paintings . . . he arrived with a little bag and cleaned not only his picture but also an Arp and a Ben Nicholson relief."

One day Mondrian walked into the gallery and asked if Peggy Guggenheim could recommend some nightclubs where he could dance. "I was rather astonished, but when I danced with him I realized how he could still enjoy himself so much," she reminisced. "He was a very fine dancer with his military bearing and full of life and spirits although it was impossible to talk to him in any language . . . I somehow doubted that he even spoke his own native tongue."

Mondrian would surely have appreciated the humor of Guggenheim's remark, secure in the knowledge that his true language did not have to be spoken to be heard. His hope was to change the world with his painting; he was really that innocently ambitious. It is not to be held against him that he failed. What he did do that is so rare was to add a certain order of clear and radiant dynamic rhythm to it—a new way of seeing.

Mondrian's last completed painting, *Broadway Boogie Woogie* (1942-43), with its staccato bands composed of small blocks, broke with his earlier, solid-lined works. "I am not quite satisfied," he stated. "There is still too much of the old in it."



David Horton based *Celestial Wondering* on the work of 17th-century telescope builder Johannes Hevelius.

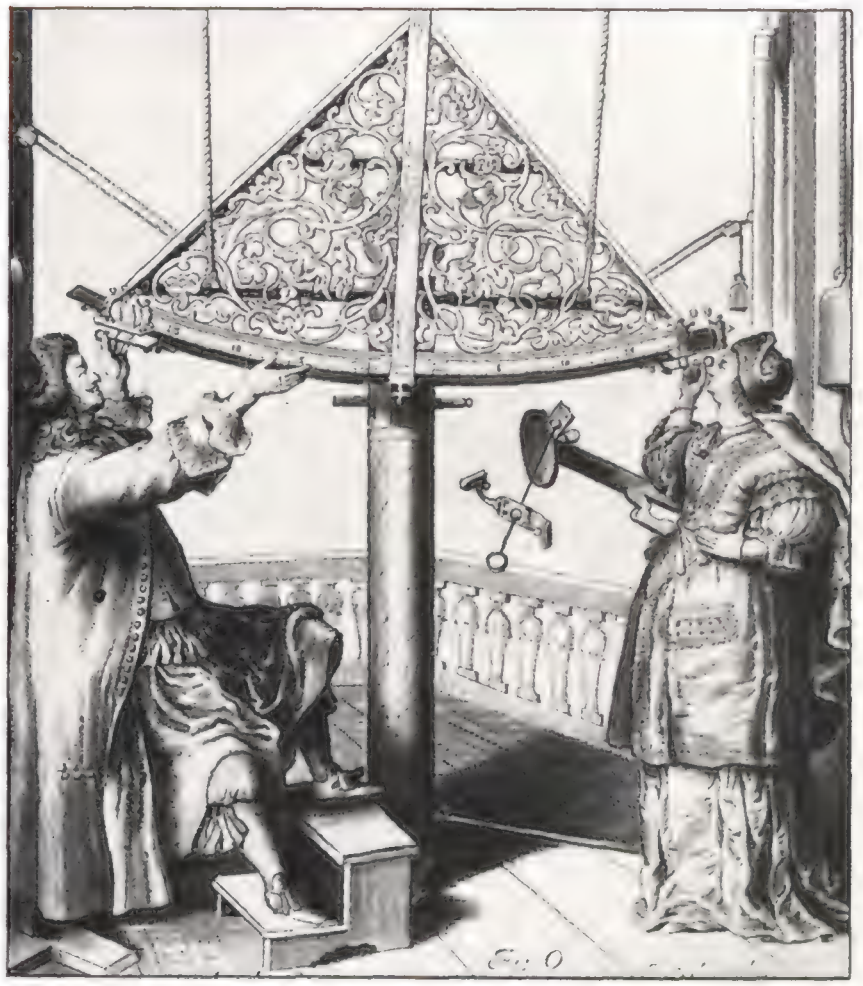
Science defined by the hands of a book artist

You can't always tell a book by its cover; in fact, it may not even have a cover. These artists' books convey their message in unexpected ways

Artists have long lent their talents to illustrating books on science. Detailed drawings accompany studies of subjects from botany to physics. But what happens when a scientific treatise is suggested to a book artist for an interpretation? "Science and the Artist's Book," an exhibition sponsored by the Smithsonian Institution Libraries and the Washington Project for the Arts, explores the answer.

To most people, a book consists of pages between covers, but books have also taken the form of clay tablets and writings on silk. As envisioned by those who specialize in creating books as artworks, the message may best be told with a sculptural approach—and it may not even be obvious that the result is a book. The 27 book artists chosen to participate were asked to base their works on one of the 200 texts listed in a volume called *Heralds of Science*. It was written by Bern Dibner, who in 1974 donated a remarkable collection of 10,000 books and manuscripts to the Smithsonian, establishing the Dibner Library of the History of Science and Technology.

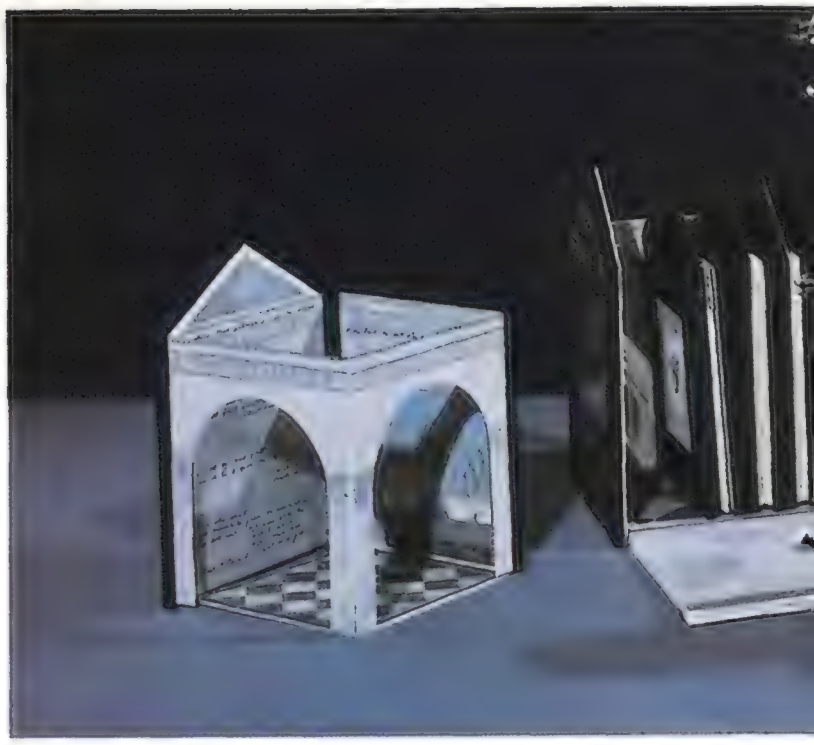
Below, in a plate from Hevelius' three-volume folio, he and his wife are shown using a quadrant.



In *Heralds*, Dibner described some of his rare books, the seminal works of such original thinkers as Charles Darwin, René Descartes and Marie Curie.

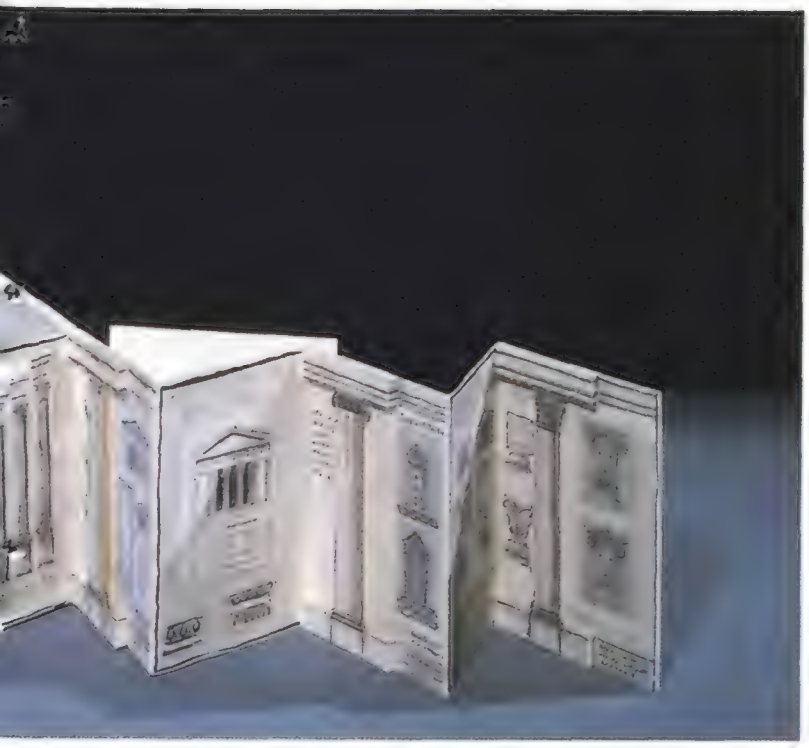
With such scientists as their inspiration, the artists approached their projects with wit and imagination. Julie Chen took on the challenge of James Watson and Francis Crick's papers on DNA. Her two-volume work fastens together to form a double helix. JoAnna Poehlmann included a freeze-dried frog in a shadow box in her book based on the work of Luigi Galvani, an anatomist who worked with frogs. In a masterpiece of engineering, Sjoerd Hofstra created what looks like a ledger, but as the pages are turned, the geometric shapes of Euclid's *Elements* rise in three dimensions on the page.

Half of the show is currently at the Libraries Exhibition Gallery in the National Museum of American History, and the other half can be seen downtown at the Washington Project for the Arts through the fall.
Sally Scott Maran



The moving of the Vatican obelisk, described by Domenico Fontana in 1590, moved Edward Hutchins to create *Moving the Obstinate* (above left), in which he argues that it is more difficult to change a person's mind than to shift a massive object. Some parts of the *Ten Books of Vitruvius* by Laura Davidson (above) open to become rooms. They are based on the writings of the first-century engineer whose work influenced Renaissance architects. Continuing clockwise, Susan kae Grant printed her text on pages made of lead for *Radioactive Substances*, a book honoring Marie Curie and addressing the hazards of working with radioactive material.

Pliny the Elder's *Historia naturalis* was muse to M. L. Van Nice, whose *Plinitude* includes elements of the natural world: seeds, insect wings and feathers. In 1793 Christian Sprengel published a treatise examining how flower color, shape and scent attract



insect pollinators; Frances Butler celebrates a different flour in *The Taxonomy of Desire*, a catalog of pasta organized by color, shape and taste.

Geoffrey Hendricks' *QUADRANT / A Meditation on Tycho Brahe*, inspired by the work of the Danish astronomer, is like a game. It has a nose, ear and hand and asks the viewer to reflect on how the senses perceive the world. Vannoccio Biringuccio's 16th-century how-to book for the practictioner of "pyrotechnical arts" was a practical guide for distilling liquids, refining metals and mixing gunpowder. Daniel E. Kelm placed his books in glass cylinders representing Biringuccio's furnaces, one for each of the "elements" of ancient science—earth, air, fire and water—in *Templum Elementorum.* M. J. Connors' *On the Commotion Contact Perpetuates* equates the hubbub of human social interaction with the excitement of electricity in Alessandro Volta's pile battery.

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By Sue Hubbell

They're as colorful as fireworks and lots less dangerous

Every Fourth of July, 'butterfliers' fan out across the country to count Lepidoptera and have a pleasant time while they're at it

"There were a lot of woodland butterflies over by the edge of those trees last year," says Gail, pointing across the gravel pit. So, without a thought, we plunge down its edge, stride across the level bottom and begin to clamber up the opposite side. The scree erodes around each of my toeholds, forcing me back repeatedly in a shower of rock. Treading gravel, I inch my way upward. I grab a root on the top edge and, with effort, pull myself up and belly-flop onto firm ground just as the rim falls away behind me in best animated-cartoon fashion. I lie there a moment, catch my breath, inwardly laughing at myself, and recall the undignified and ridiculous postures I've assumed over the years chasing bugs.

I am taking part in the Fourth of July Butterfly Count, held each year on a date reasonably close to its name. This, the 20th count, is expected to be the biggest ever; planners have estimated that more than 2,000 people will participate in more than 250 locations nationwide. The Fourth of July Count is something like a butterfly version of the National Audubon Society's Christmas Bird Count. On a given day, volunteers all over the country gather in designated areas and go out to count every butterfly, caterpillar and egg they find. A report on the species and numbers that are tallied is issued annually by the North American Butterfly Association (NABA), an organization based in Morristown, New Jersey.

The first count was conducted by 76 people in 28 places, on the East and West coasts, and in Colorado. "Celebrate the Fourth with butterflies," urged Sally Hughes, the count's founder, in 1975. "They're just as colorful as fireworks, and a lot less dangerous. I hope you have a pleasant time." The four of us in this count group are having a pleasant time, all being the sorts of people, apparently, who find climbing gravel pits a perfectly happy way to spend a Saturday afternoon.

The clearing beyond the gravel pit at the wood's edge is good habitat for butterflies such as hairstreaks and several of the big swallowtails, the black-and-white striped zebra, for instance, or the duskier tiger, all of which like to nip in and out of the shadowy refuge of trees to open meadowland. But we find nothing for Gail to add to her tally sheet. Last year when she counted here in Maine, the weather was better. This month, however, tropical storm Alberto has been battering the Southern United States, forcing masses of hot, wet air northward, affecting weather even in Maine. Our count area, near and around Hiram, west of Sebago Lake in the state's southwest corner, was soaked last night with a stout rain, and this morning it is damp, misty, gray. Sensible butterflies have tucked themselves in tall grasses, under leaves, in dry nooks; they're waiting for sunshine.

At 9 in the morning, when we start, the temperature is somewhat better than 70 degrees, which should be warm enough for butterflies in the Brownfield Bog, a state wildlife management area, our first count stop. The bog is a series of shallow lakes filled with water lilies. The hills around it are hung with low-lying clouds. It is a beautiful spot, and today rose pogonias, vibrant pink in blossom, mark the lake's edge. Echoing their color, but more modest in size, hue and growth, are the flowers of wild cranberries.

The cranberries are the host plant of bog coppers, *Lycaena epixanthe,* and the previous year Gail and her group had counted 105 of them here. They are small, inconspicuous butterflies, very specialized in their life requirements. The underwings of both males and females are a creamy grayish-yellow; males' wings are glossily purple-brown above; females' are a duller dun brown. Adults seldom visit flowers at all, and the only known host plant for the caterpillars is the wild cranberry. Chemical sprays on commercial cranberry bogs prevent bog coppers from living where the plant is farmed. Consequently they are found in isolated populations in acid bogs such as this one, where cranberries grow wild. Robert Michael Pyle, in his authoritative *Audubon Society Field Guide to North American Butterflies,* writes that some populations consist of only 50 to 100 individuals. This year, thanks to Alberto, we'll have none to report.

Gail Everett, our leader, is our expert; one such expert is required for each census report. She can identify

A regal fritillary butterfly (top) and several great spangleds "drink" nectar from butterfly weed flowers.

butterflies quickly by sight from a lifetime of experience watching them. She is not a professional lepidopterist (a person who studies butterflies and moths, members of the order Lepidoptera). She is a medical transcriptionist from nearby Portland.

Many butterfly authorities are self-taught and have other professions. The late Paul Grey, who was America's leading expert on *Speyeria*, the genus that includes many of the fritillary butterflies, was a carpenter by trade. Jeffrey Glassberg, president of the NABA, which sponsors this count, is a molecular biologist. Richard Heitzman, an internationally recognized authority on butterflies and moths, earns his living carrying mail for the U.S. Postal Service. "I've been interested in butterflies all my life," Gail tells me. "I've been conducting an official account in this area for several years because it's what I've always done anyway, and I want to help other people learn what fun it can be."

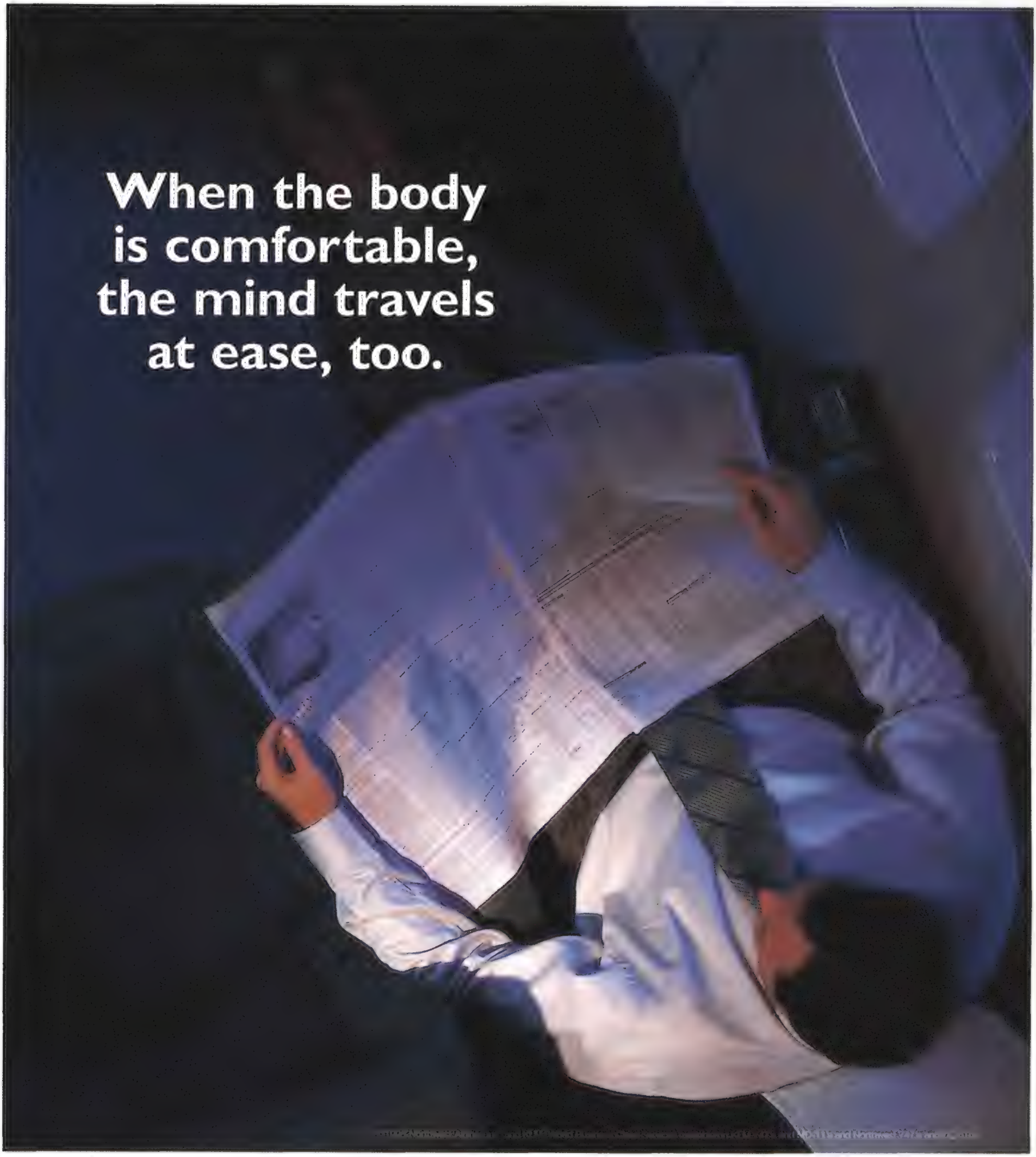
The other members of our group are not expert, but we bring curiosity and interest with us. Joanne, an American resident of the Netherlands, is in this country for a family visit. She is a medieval art historian by education, but in the Netherlands she has been working for a group that is putting together a countrywide atlas of natural history. Her particular assignment there is dune butterflies. Brian, the remaining member of the group, is a writer and retired builder. An entomologist from the state government was supposed to join us, but he did not show up at the designated meeting spot. "He asked me on the telephone about buck moths," Gail says. "I guess he was interested in them." And in the bog we do find buck moth caterpillars, big with dark bristles that are irritating to the touch. Although butterfly eggs, caterpillars and adults are all tallied in the Fourth of July Count, moths, in any stage, are not. From a taxonomic standpoint, moths are different from butterflies.

A couple of years ago I tried to puzzle out the hard differences between moths and butterflies. Many moths fly at night, but some are daytime fliers, too; many are dull-colored with feathery antennae, but others are not. I had taken my confusion to Robert Robbins, one of the world's foremost butterfly authorities, who is at the Smithsonian's National Museum of Natural History. He said not to worry too much about the distinction and explained that butterflies probably evolved from a moth-like ancestor sometime between 50 million and 100 million years ago. "It helps," he said, "to think that butterflies *are* moths, specialized moths." This summer, not coincidentally, the Smithsonian will open an outdoor butterfly garden exhibit on the Mall, next to the Museum of Natural History, which will explain the relationship between butterflies and plants.

On this day, in the cool mist, if our goal had been entomological numbers and numbers alone, we'd be better off if we could count moths because everywhere we walk on the bog we stir up small day-flying moths, some white, others shades of gray. They are creatures able and willing to fly in conditions that butterflies do not like. Or perhaps we should be counting beetles. We find shimmering scarabs, iridescent copper, red and green, huddled in groups of two, three and more, brightening the leaves of dogbane. Shiny blue damselflies are also hanging in thick numbers in the dewy grasses, looking for all the world like blue tubes of neon lighting up this dim day. At last we spot a couple of spring azures, *Celastrina ladon*, bright blue wing tops, skim-milk blue underneath. They are springtime harbingers of fair weather to come, and today they promise us better conditions, also.

On the way out, Gail stops to check the alders growing shrubbily along the edge of the road leading out of the bog. Last year these alders were covered with woolly aphids. Gail tells us that the aphids became, in turn, a rich source of food for America's only carnivorous butterfly, the harvester, *Feniseca tarquinius*. Most butterfly caterpillars stick to less-meaty fare, but the greenish-brown caterpillars of the harvester gorge on aphids, then burrow under them, camouflaged by their secretions and debris. They are transformed into slow-flying,

Gail Everett, a medical transcriptionist by profession, looks for butterflies among the thistles in a Maine field.



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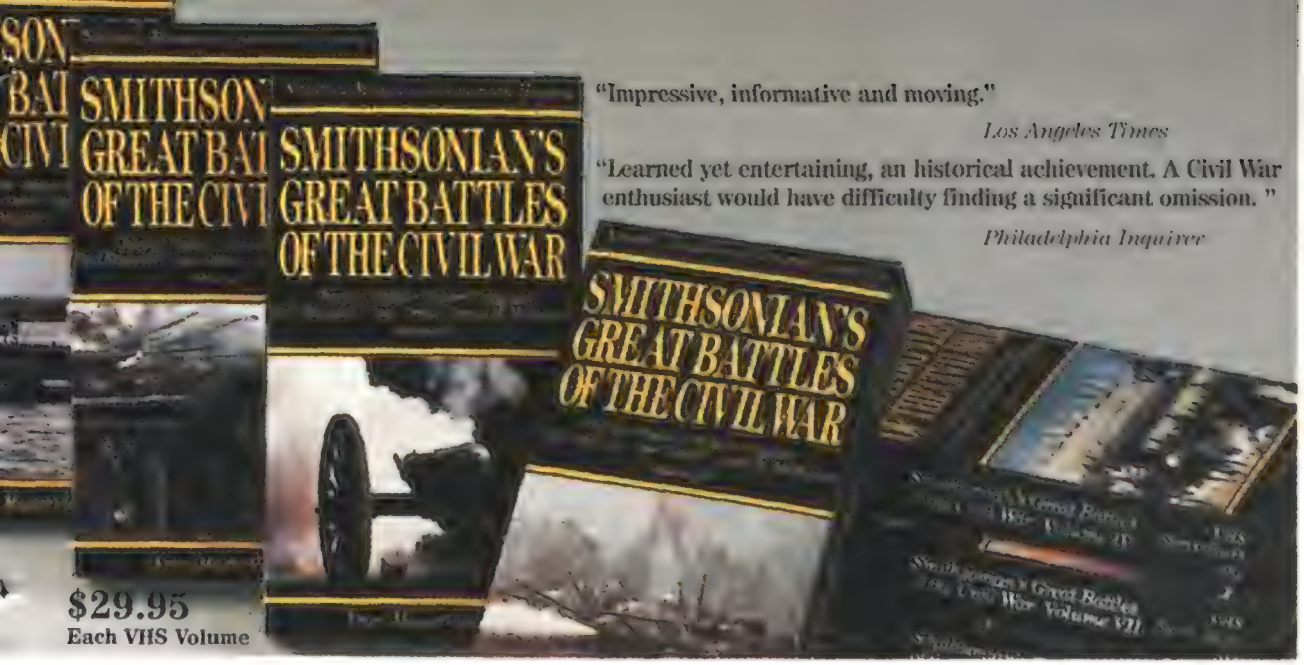
Native bog copper (above) is restricted in habitat to marshes where wild cranberries grow, but non-native cabbage white (below) has a much wider range.

Common wood-nymph (above, resting on a horsetail) is a "true" butterfly, whereas the skipper (below, on iris petal) is not; the caterpillars of both feed on grass.

orange-and-black adults who never go far from the aphid-covered leaves. The adults feed but little, and when they do they are thought to feed on aphid honeydew, secretions from that insect. For several years running, these alders were festooned with clumps of aphids, and the harvesters were many, but this year there are only a few aphids, and we see no harvesters.

Not much in the way of butterfly numbers has been produced from our first hour and a half of the four-hour count period, although all of us seem to have enjoyed ourselves, just as Sally Hughes had hoped. At the time she established the count, Hughes was married to Robert Pyle, who had begun the Xerces Society. For 18 years Xerces was the sole sponsor of the Butterfly Count. Pyle named the organization, which is dedicated to invertebrate conservation, after the diminutive Xerces blue butterfly, *Glaucopsyche xerces*, a former resident of the dunes near San Francisco and the first American butterfly species to become extinct from human interference. The count was begun, quite consciously, as an analog to the Audubon Society's Christmas Bird Count, and indeed many butterfly counters also participate in that event. NABA president Glassberg, who has also served as president of Xerces, told me, "Many

Sue Hubbell's latest collection of writings, Far-Flung Hubbell, *will be published in August. It will include pieces that first appeared in* SMITHSONIAN.



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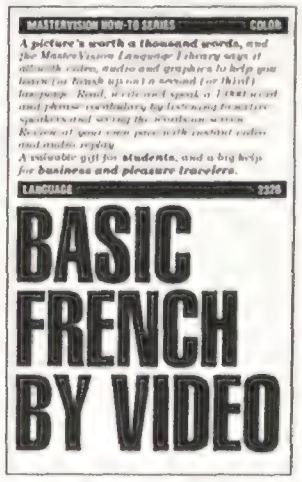
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Smithsonian Magazine

Pair of crescents wander across a cluster of common milkweed flowers, looking for places to take nectar.

birders are coming into butterflying. There are about as many species of butterflies as birds in North America. Birders can easily see 500 species of birds in a year, but butterflies, with their discrete, often small ranges, are harder to find and therefore more challenging."

Today the Xerces Society, based in Portland, Oregon, has a paid staff of four, headed by Melody Mackey Allen. Its president is the renowned Cornell University biologist Thomas Eisner, and its board of directors includes such well-known scientists as Edward O. Wilson, the writer and Harvard entomologist. Two other directors are affiliated with the Smithsonian—Michael Robinson, director of the National Zoo, and Terry Erwin, curator of entomology at the Museum of Natural History. There are nearly 6,500 members.

Over the years, as the butterfly count grew bigger, the society's small staff had a hard time keeping up with the compilation and publication of the data. Xerces, although started by a lepidopterist, has an interest in all invertebrates, and so, when Jeffrey Glassberg proposed that his fledgling NABA take over the major responsibility for the count, Melody Allen and her board of directors were happy to relinquish it. Today Xerces is concentrating its resources on invertebrates and ecosystem conservation, providing small stipends to deserving young scientists. "Beginning researchers," Allen told me, "are imaginative, idealistic and hardworking. Frankly, you get twice the work from them at half the salary of established scientists. We are excited about Xerces' new direction. We believe this will help us keep in touch with new ideas. Of course we are still interested in butterflies. We've collaborated with the Smithsonian in publishing a book, *Butterfly Gardening*, which is now in its fourth printing."

The NABA, two years old, is an all-volunteer organization with nearly 2,000 members. Many are attracted to the group by its emphasis on using binoculars to see butterflies, not nets to capture them. "Nets put people off," Glassberg says. He does not "collect," that is, kill butterflies—although he does concede that collecting is an important part of invertebrate research. He makes it emphatically clear that he is also not a butterfly "watcher." He is a "butterflier," which means that he not only watches butterflies through binoculars but also keeps records of how many he sees, takes photographs and cultivates butterfly gardens.

In addition to heading the NABA, editing its magazine, conducting butterfly tours to places like California and Mexico, and leading the Fourth of July Count in Westchester County, New York, the 47-year-old Glassberg has cofounded and sold a biotechnology company, recently completed law school and passed the New York Bar. He also writes field guides. We used his excellent *Butterflies Through Binoculars: A Field Guide to the Boston-New York-Washington Region* in our Maine count.

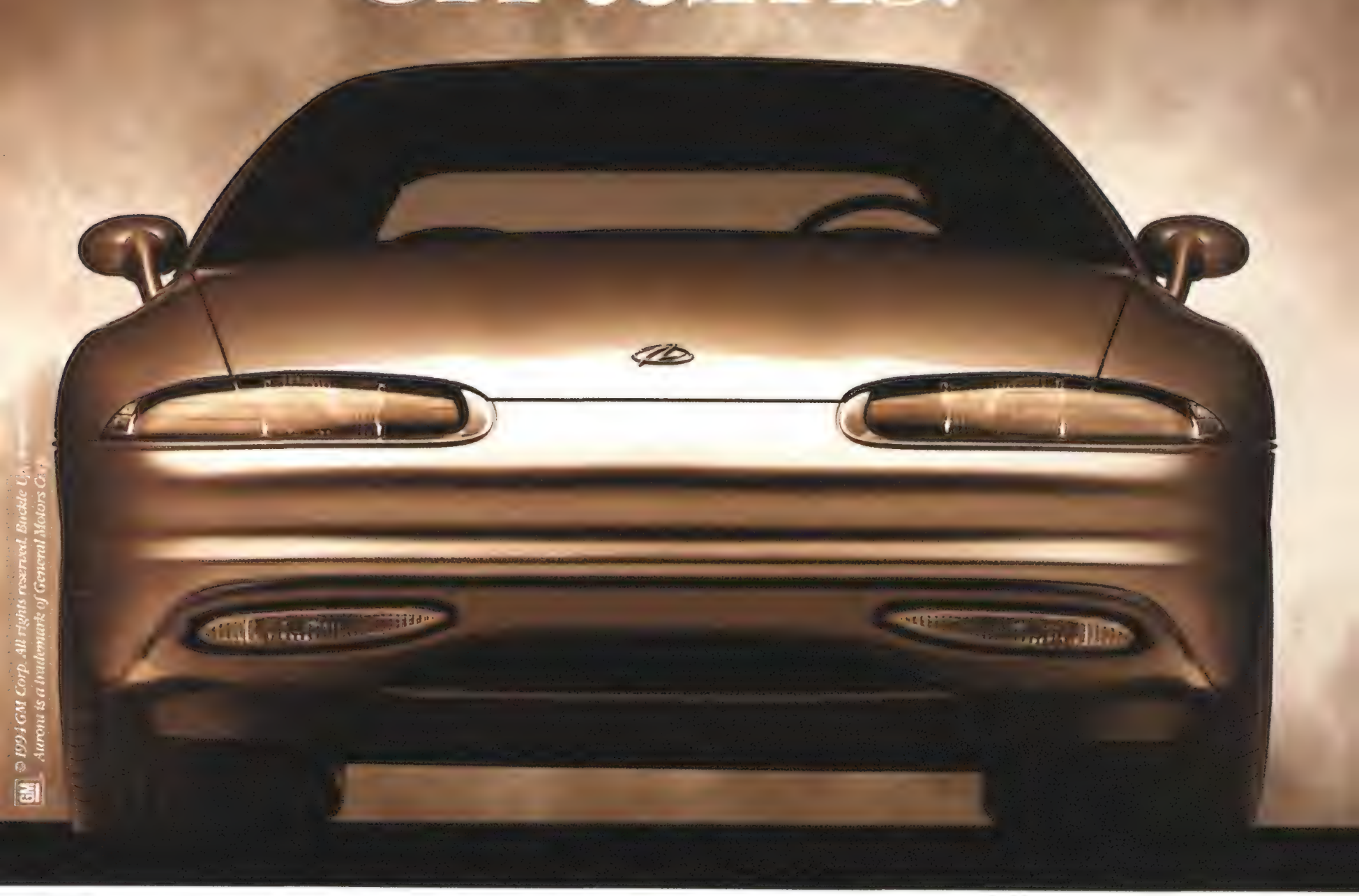
Glassberg is zealous in his advocacy of non-netting. "Butterflying is in a transitional period, like birding was 60 years ago. The similarities are uncanny," he explains, referring to the days before the advent of good binoculars and field guides, when all the experts from the great Audubon on down used to kill birds to identify them. "It was hard to identify butterflies on the wing with most old field guides, which contained great pictures of dead butterflies. My field guide shows you how to identify by sight only, so you don't have to kill or net. You become a better observer if you identify butterflies without a net; you learn about flight patterns and behavior."

A place for butterflies—even in New York City

The NABA's primary goal, Glassberg tells me, "is recreation, but conservation is important, too. Butterflies are easier to help than wolves or other creatures that need big stretches of land. Even in a place like New York City, you can retain significant butterfly habitat by creating corridors of small, connected pieces of land."

The sky is not noticeably lighter when we four butterfliers make our next stop in Maine, but the temperature is near 80 degrees. Our site is a partially mowed hayfield, bordered by woods, that slopes gently down to a lake.

There are larger works of art. But none that hang so well on turns.



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The rising temperature is bringing more butterflies to flight. Gail says this is good habitat for other coppers and blues, perhaps even some swallowtails. We begin seeing northern crescents, *Phyciodes selenis*, small bright butterflies with black wing edges, the males orange, the females somewhat paler. Found in meadows or vacant lots where a variety of flowers bloom, particularly asters, these cheery butterflies are common and widespread. The other two call them out for Gail to tally until Brian says, "Wait a minute. There's something new," as a splendid orange butterfly sails past. It has black checks on its upper side and shimmery white ones that look like dewdrops on its underside. "That," says Gail happily, "is a great spangled fritillary." Milkweeds blooming here may be what has attracted this showy creature to the field.

Entomologist manqué that I am, I keep getting diverted from butterflies to other insects and try to interest my companions in a pair of bee mimics. The first is a beetle that appears to be fuzzy, with its muted crosshatching of yellow and black bands. It is beetly in shape and lacks the pinched waist of the stinging insect it mimics. Of the same order as bees and wasps, but also lacking the characteristic waist, is the second, a big female horntail nestled down in the grass. Her paired wings are spread flat; she is yellow-and-black striped to make you think she is dangerous, but what protrudes so threateningly from her abdomen is not a stinger; it's an ovipositor, for laying eggs.

All of us are tricked into thinking "butterfly" when, out of the corners of our eyes, we see another insect flying up out of the grasses on what look like triangular wings. When we see it at rest, we are embarrassed by our mistake. It's one of the Libellulid dragonflies, clinging to a leaf with its wings horizontally extended.

Counting "true" and "untrue" butterflies

We begin to see skippers, those often dull-colored, large-bodied, furry, small butterflies with eyes that look like tiny shoe buttons. They appear mothlike to the untutored eye. Their antennae are clubbed, like most butterflies', but have little hooks extending from them. Skippers are not what lepidopterists call "true" butterflies—those are the swallowtails, monarchs, fritillaries and such—but taxonomists include them among the butterflies, "untrue" ones as it were, and we are counting them. There are many species of them, so alike in patterning and coloration and so fast in flight that they are a real test of an observer's skill.

By the time we arrive in the gravel-pit area after lunch, the weather has warmed even more, and we see many more skippers. Gail is pleased to find several Delaware skippers, *Anatrytone logan*. They are about as distinctive as a skipper can be. The upper wings are fiery orange, bordered with brown. "I could hardly believe what I was seeing last year," she says. "It was the first one I'd ever seen here, and they'd not been previously reported from the area. I guess they've moved in." Another skipper defeats her. She nets it, and we all sit down in the grass with her as she puzzles over the drab, obscurely marked butterfly. Is it perhaps a broken dash, she wonders? We have Glassberg's book with us and several other field guides, but the creature is not quite like any of those pictured. We had merely stirred this skipper from the grasses, so we were not able to observe its flight. Ruefully, Gail "collects" it. At home she'll spread it and try to identify it before including it in her count report.

Although this piece of land looks unprepossessing to the motorists driving by us on the road, it is prime butterfly habitat, filled with milkweed in blossom. It is here that we find another great spangled fritillary, a couple of common wood-nymphs and more northern crescents than anything else. But we are watching for another orange-and-black butterfly, a bigger one, the monarch, *Danaus plexippus*.

The pink clusters of milkweed flowers are sweetly fragrant and scent the moist air. It is milkweed that has made Gail include this scrappy patch of ground around

Jeffrey Glassberg, president of the North American Butterfly Association, studies reference books at home.

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Brilliantly striped monarch caterpillar munches on leaf of milkweed, the only plant it requires to survive.

the gravel pit in her count. Milkweed flowers attract many butterflies, the fritillaries we have seen, for instance, but it is the host plant only to monarchs and their relatives. Monarch caterpillars subsist entirely on milkweed leaves. They are able to store in their bodies toxic chemicals from the plant that do not hurt them but, instead, stay with them through all of their bodily changes into winged adults and make them taste bad to birds and other predators. Their bright coloration advertises their distastefulness, flaunts it; it is a gaudy defense mechanism.

Monarch butterflies, one of America's most beloved, have seemed to be in decline in recent years. Last year's count reported a heartening increase in numbers, and so far this year Gail says she has seen a fair number in other places. Today we see no adults, which disappoints her, but we do find two big, brightly striped white-yellow-black monarch caterpillars under milkweed leaves. One, curved back, is beginning to pupate. Yet another caterpillar, its species unknown to Gail, is eating aspen leaves. She carefully bottles it, along with its leaf, to take home, raise and identify before she turns in her count report.

After our fruitless climb to the woods on the other side of the gravel pit, we circle back to our cars. On the way we spot a couple of cabbage whites, *Pieris rapae*, a European native that was accidentally introduced into Quebec around 1860 and spread so rapidly that it now can be found throughout North America. These familiar creatures, white wings marked with black dots, are the English sparrow or kudzu of the butterfly world. Like other introduced species that have spread vigorously, they are tough and opportunistic, thriving in disturbed places that will no longer support native species. Gail scowls at the first one, thinking of all for which they stand. "I don't like seeing them," she says.

We find another one on the underside of a leaf, carefully drying its as yet weak wings. It has just emerged from its nearby chrysalis, where it changed from a small green-and-yellow-striped caterpillar to this adult, which will, after its wings are able to carry it, fly out, mate and bring into being a new generation. One of the reasons the cabbage white is so successful is that it typically produces three generations each year. Other species, including many native ones, generate only a single brood. Gail looks at this fresh butterfly and sighs, "It is so perfect it almost makes me like it." Dutifully she tallies it.

Gail's tally sheet is the raw material for the report she will turn in. She will arrange the butterflies we have counted in proper lepidopteran order and give them their approved Latin names from the checklist she has been sent by the NABA. She will report the weather, temperature and numbers of observers and describe our count area. She will also include some comments that seem pertinent. Last year, for example, at the end of her tally she wrote: "Bog coppers were observed flying low over and nectaring at cranberry plants. A diligent search found no larvae or eggs of Monarchs, though the one adult seen was certainly fresh. . . ."

Although the numbers will be small, Gail's tally will include several significant items, not the least of them the continued presence of the Delaware skipper, which indicates that its range may be expanding. She will send her report to Ann Swengel and Paul Opler, coeditors of the NABA's international count. They will correlate all of the individual tallies and analyze them for the annual report (available from the NABA).

Are these reports of scientific interest? When I asked that question of Robert Robbins he told me, "At present the butterfly counts are not objective enough to estimate population sizes accurately. They have the potential of being of enormous value, particularly if colonies of very rare and endangered species are discovered." He paused and then added, "And they *are* fun."

Fun. Recreation. A hobby. "Pleasure" is the word I would use if I were to give the reason I join up with a Fourth of July Butterfly Count any year that I can. The pleasure of poking around out-of-doors in wild places I've not been before. The pleasure of being in the company of someone knowledgeable and generous enough to share that knowledge. Our lives slip by, an accumulation of days that are hard to remember. The days I've spent chasing bugs with butterfly experts and others, each and every one of them, are clear in my mind, unique, distinct, and will remain that way as long as my memory lasts. That is a special pleasure indeed.

An adult monarch butterfly rests on an Indian blanket, preparing for its long flight to Mexico for the winter.

By Jack Fincher

By Convention, the enemy within never did without

During WWII, 375,000 German prisoners of war lived so well in U.S. POW camps that thousands migrated back to become citizens

Late one night in the 1980s, Texas A&M history professor Arnold Krammer got a long-distance telephone call from a man at a pay phone who wanted to talk about Krammer's book *Nazi Prisoners of War in America.* The caller soon swung the conversation around to the 2,222 Germans who had escaped from POW camps in this country between 1942 and 1946. There was no mistaking his inside knowledge. What else could he be but one of the thousands of ex-prisoners who had since emigrated from Germany back to the United States. Krammer was astonished when the voice finally blurted out:

"I escaped from Camp Deming, New Mexico, in 1945 and have been on the run for 40 years. I want to come in from the cold." The only POW remaining at large, Krammer knew, was Georg Gaertner, a sergeant in Field Marshal Erwin Rommel's famous Afrika Korps. "Hello, Mr. Gaertner," Krammer said. Chuckling, Gaertner quietly replied, "Hello, Professor Krammer."

Gaertner was innocent of any crime; under the Geneva Convention all POWs have a duty to try to escape. As the last man left of almost half a million Axis prisoners penned up on U.S. soil during World War II (some 375,000 of them—about ten divisions' worth—German), he was allowed to resume his life in Hawaii as a building contractor. That he has since returned to Germany diminishes not at all the enduring fascination his kind

I.D. pictures taken on arrival helped ensure that of 2,222 POWs who escaped, most were swiftly caught.

A new batch of prisoners exercises at Camp Polk, Louisiana, one of the 666 POW camps in 44 states.

A 1991 POW reunion at *faustball* escape site in Arizona included American citizens Hans Lammersdorf (dark shirt) and Walter Janek (far right).

hold for those of us old enough to remember their wartime presence.

That fascination, in fact, was evident one day in Phoenix, Arizona, when ten former prisoners of war came back as guests of a local study group to commemorate the onetime German POW camp at nearby Papago Park, scene of the only organized, large-scale domestic escape by an alien enemy in U.S. history. The escape route took three months to dig. On Christmas Eve 1944, twenty-five crisply disciplined captive submariners clambered through a superbly engineered, electrically lighted tunnel they'd dug through 66 yards of hard clay and fanned out as far as San Diego. All were recaptured.

A corroborating witness at the Phoenix meeting is World War II American submarine officer Arthur Lidman, who now owns a house on the land where the tunnel came out. Lidman likes to brag that he has the "only basement in Phoenix built by a German admiral," a reference to one of the digging ringleaders, Lt. Fritz Guggenberger, who went on to attain illustrious rank in Germany's postwar navy.

At the POW reunion I attended in Phoenix, only one escapee, 69-year-old Johann Kremer, a grizzled machinist from Cologne, and his wife were among the German couples who spent ten festive days with host families. Kremer was kept busy. He waggishly donned a cowboy hat, drank beer and danced to country music with the others. The favorite POW pop tune of 1943, Kremer averred, was the Bing Crosby hit "Don't Fence Me In." At a sun-baked city softball field, he also solemnly joined in singing a German anthem to fallen comrades.

Two of the former POWs attending had become U.S. citizens. One, Afrika Korps veteran Dr. Josef Gerster, is a cardiologist in Scottsdale and president of the study group the Papago Trackers. A graduate of Heidelberg University, Gerster has on a wall in his fashionable home a family crest dating back to the year 1300. He counts as one of his life's proudest moments his son Kurt's initiation into his (and Chancellor Otto von Bismarck's) Prussian fraternal order, achieved in part by winning a brief ritualistic duel with cavalry sabers. He still has a German accent as well as memories of his two prison camp years in Atlanta, Nebraska. "When I wrote my parents where I was imprisoned," he likes to say, "they wrote back that they had finally read my 1941 Christmas gift to them, a German translation of *Gone With the Wind*, and wasn't it wonderful that I was in Margaret Mitchell's home town! The censor had cut the 'Nebraska' out of my letter."

At the opposite pole from Dr. Gerster stood Walter Janek, who lived in Dallas until his death late last year. His tinted sunglasses, bolo tie and certifiably good ol' boy speech made it almost impossible to believe he had lived the first 20 years of his life in Silesia. Janek and his German-born wife drove to the reunion in their lavish truck-and-trailer rig, bought when they retired and sold their two roller rinks in Dallas. He brought his scrapbook showing the burning vessels his sub, U-67, had torpedoed and a view of the sub after it was driven to the surface in the Atlantic.

"After a Texas television station ran a segment on me, I got a tip that my submarine had been sunk by two Texans, and they had the pictures to prove it," Janek said. "When I got in touch with them, they didn't believe I was a crew member at first. But when I asked, 'What went wrong with the lifejackets?'—they threw some down that missed us—they knew that I was telling the truth."

A reception for the public in the local Elks lodge included former camp guards Larry Jorgensen and Irvin Collins. "Aside from the tunnel," Jorgensen said, "what I remember most is my commanding officer giving blood to save the life of a POW who had cut his wrists when he was caught running away." Out of their chance wartime encounter, Collins and a POW named Hubert Spiessberger, a bartender at the officers club, became lifelong friends. "My wife and I visited his family in Germany, and he visited ours,"

The author has written many stories for SMITHSONIAN. *He is now deep into a new career in film writing.*

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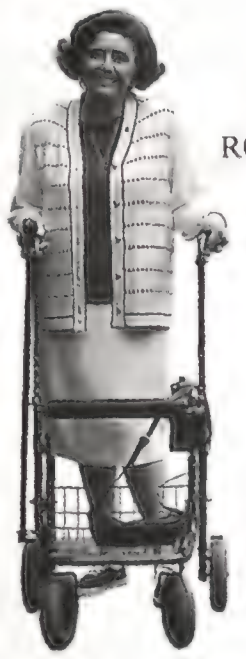

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Collins said. "Hubert was a wonderful gentleman. He just died this year."

When the war began, nothing could have been more remote than the prospect of such a gathering. From the start, our POW policy was driven by an intent to ensure the safety and well-being of Americans in Nazi hands. So scrupulously did we hew to the 97 Geneva Conventions that guards at new POW camps were initially ordered to sleep in tents because the POWs had to—despite the fact that the guard barracks, unlike those of the prisoners, were ready for occupancy.

Faced with an acute manpower shortage on the home front, the United States soon overcame its fears of mass escape and put the vast army of POWs to work in the public sector—thus not only paying for the work program but democratizing large numbers of U.S. foes as nothing else could. Quips Baron Rudigar von Wechmar, an ex-prisoner in a camp outside Trinidad, Colorado, and now a member of the European Parliament, "Thanks to my experience in Kansas and Oklahoma, I am an expert at harvesting broom corn and killing rattlesnakes."

After the war, many German POWs couldn't wait to get back here. "There is no perfect country," admits Kurt Pechmann, a former 24-year-old machine gunner and frostbitten veteran of Stalingrad who was captured in Italy in 1944. Now a naturalized citizen and monument maker living in Wisconsin, Pechmann fervently believes "America beats by far anything. Oh, definitely."

The POW problem first surfaced here in 1942 after Britain, its tight little isles bulging with prisoners of war taken after Rommel had been beaten back from Cairo, asked if the United States could house 150,000 soldiers of the famous Afrika Korps. Initially, the U.S. Government was profoundly fearful. Our largest influx of foreign POWs to date had been 1,346 German sailors seized off ships in port at the onset of World War I. Despite their small numbers, a few hostile escapees were widely credited with blowing up New Jersey's Black Tom munitions plant in 1916.

The specter of such men breaking out not by the handful but by the hundreds or even thousands, and perhaps roving the country in an orgy of organized sabotage and violence, was chilling. Besides, a program to build facilities and recruit competent German-speaking personnel (a shortage

Prisoners tend a celery field near their camp in Northern California. Tens of thousands of POWs worked on farms and even in factories; the U.S. Government was reimbursed the minimum wage for their labor.

At Camp Funston, Kansas, POWs give Hitler salute at a funeral. In a few camps hardcore Nazis murdered fellow prisoners for "treasonous" behavior—from being friendly with the enemy to liking American jazz.

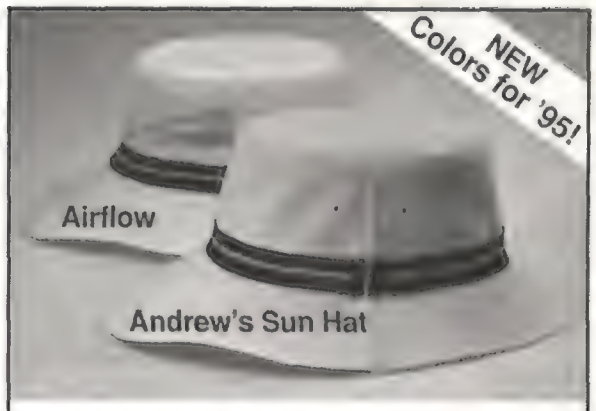
never fully satisfied) would be expensive and distract from the scramble to get an isolationist, largely pacifist nation ready for war. Still, in September 1942, $50 million was approved for construction of POW camps.

Two months later the United States invaded North Africa, and in 1943 POWs began pouring in by boat, convoyed past lurking German submarines. Von Wechmar's ship was one of four loaded with POWs when they were intercepted by a wolf pack of U-boats. "The captain told us over the intercom that he would try to radio the Red Cross in Geneva," Von Wechmar remembers. The German naval command radioed back instructions: if the POW ships would turn on all their lights they could proceed unharmed.

Nazi propaganda, plus a skillfully faked Luftwaffe film of bomb-shattered American cities, had led arriving POWs to expect widespread war damage. Some were actually convinced that Hollywood set designers had been at work on the areas they were permitted to see. And here they were on a comfortable train rolling westward through endless countryside, so varied, so full of moving automobiles!

From the outset, American civilians oscillated between delight at the economic windfall of a new $500,000 camp near their town and outrage at what, with some justice, they saw as the coddling of an enemy who might otherwise be killing their sons in battle. In Stephenville, Texas, an officer who bought Cokes for POWs he was escorting from one site to another was roundly cursed by a counterwoman. Letters to the government could be equally irate: "Put them in Death Valley, chuck in a side of beef, and let them starve," read one. Even less-vociferous Americans were eventually stirred by pictures of captive German generals splashing in a segregated Jackson, Mississippi, swimming pool, and the spectacle of POWs being served at the counters of Southern lunchrooms while black American soldiers were forced by Jim Crow laws to stay in the kitchen.

I remember seeing my first POWs in Tulsa, Oklahoma, on a sleepy afternoon in 1943. I was 12, delivering papers, when I heard the prisoners were parked in trucks on Route 66. I got on my bike and pedaled off. And sure enough, there they were, German soldiers. Members of the Afrika Korps. You could tell from their sand-brown desert uniforms of short-sleeved shirts, knee britches and long stock-



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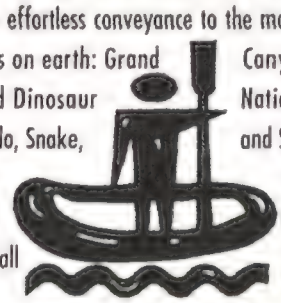

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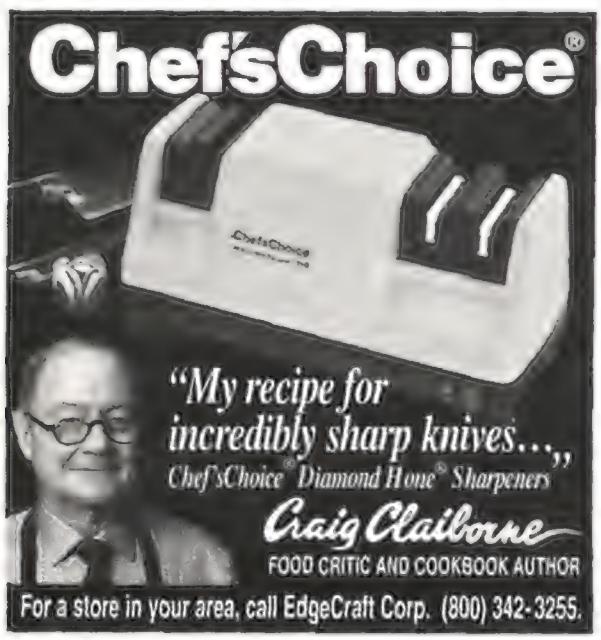
ings, and the occasional square-cut panzer cap.

One of them caught my eye, a stocky young man with tousled blond hair. Suddenly glancing at me, he smiled and winked. He actually winked. A jolt—of shame?—shot through my body. I ducked my head and looked away. I did not look back until I heard the trucks grind into gear and rumble out of town.

As boys will in wartime, I followed every campaign on all major fronts, but I had no idea there were 30 POW camps in Oklahoma alone, including one for the notorious Waffen SS (Hitler's armed guard). Wherever the POWs found themselves, they were initially held in secrecy under a cloak of voluntary press censorship. Few Americans were ever really aware of their numbers—let alone of the paradoxical experiment in democracy their prolonged stay in this country would turn out to be.

They came in two great waves, one in 1942 and '43, the other after D-Day in June of the following year. Their sheer numbers swamped the first of 155 base camps scattered around the country but mostly in the Sunbelt (to keep POWs away from militarily sensitive coastal areas and to minimize the cost



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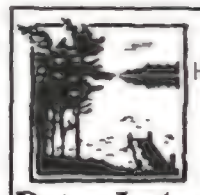
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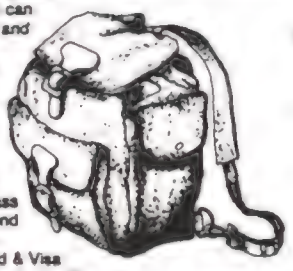
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Cardiologist Dr. Josef Gerster, with his wife, Caroline, got his start in medicine working in a camp lab.

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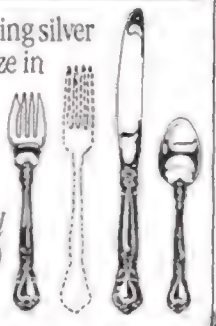
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Preparing for a play, five POW actors read through parts at Camp Polk. Other diversions included chess, music, ornate gardens and assorted pets.

of keeping them warm in winter). Tent cities handled the initial overflow. Armories, Southern California's Santa Anita racetrack, even (in Pechmann's case) a Madison, Wisconsin, ballroom were commandeered.

Like many of the other camps, Papago Park had been a decaying Civilian Conservation Corps camp (SMITHSONIAN, December 1994) from the Great Depression. Though 30 German officers at Camp Clinton, Mississippi, complained bitterly over the lack of barracks insulation (they weren't used to the South's heat and humidity) and lack of bathroom privacy, most POWs were sooner or later put in reopened military posts that duplicated the minimum standards of any American Army base.

The new camps housed up to 4,000 POWs each, in barracks heated by potbellied stoves and made of concrete and wood, with roofs of tar paper or corrugated tin. There were tidy grids of gravel roads and walkways, mess halls, workshops, canteens, infirmaries, recreation halls, hospitals, dental clinics, chapels, post offices, warehouses, and playing fields for soccer and volleyball.

POWs were issued dark blue fatigue uniforms with "PW" stenciled on the back in tall white letters (a good target, the cynical among them said). Then they were served their first meal. Recalled one prisoner later, "Such a menu: soup, vegetables, meat, milk, fish, grapes, coffee and ice cream! Never before in our military career had we been served a meal like that." An indoctrination as effective as it was unintended had begun (though Rudigar von Wechmar would later whimsically rue the "avalanche" of peanut butter sandwiches that came after the war in Europe ended, when the United States no longer had to concern itself with how American prisoners in Germany were being fed).

At first, typical duty hours for POWs were divided between routine military housekeeping chores and on-base technical, maintenance or administrative jobs (for 80 cents a day in wages and 10 cents a day military pay, all in scrip that could be spent at the PX or credited to their individual accounts). Dr. Josef Gerster recalls bluffing his way into a job as a lab technician that changed the direction of his life. "I wasn't planning on going to medical school, but I had been hospitalized with malaria, and the doctor had shown me my parasites under a microscope," he remembers. "When the

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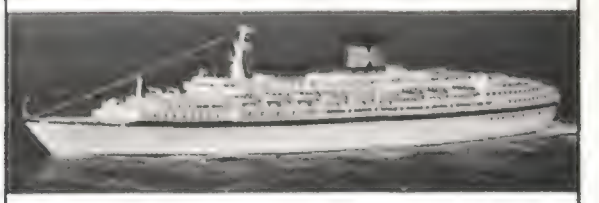

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camp authorities in Nebraska asked if any prisoner could identify malaria parasites on a slide, I got the job."

Now and again the workload expanded to include tasks their guards found peculiar. After POWs at Fort Sam Houston in San Antonio, Texas, were issued rubber-heeled boots that could not be smartly clicked, Prussian-style, they got official permission to machine-cobble their own highly clickable wooden heels. Beginning in July 1944, all camps were encouraged to cook the prisoners' national dishes, such as pig's knuckles, würst and black bread, after blander American-style beef and white bread went uneaten. Some critics later accused the government of catering to the whims of its prisoners, but food waste fell off so dramatically as a result that one garbage collector in McAlester, Oklahoma, had to cancel his contract.

In his book, historian Krammer rather rosily pictures POWs after hours as sculpting chessmen from soap, manipulating math tables in their heads and racing cockroaches. In

Johann Kremer, a Cologne machinist, helped design tunnel through which 25 escaped from Papago Park in 1944.

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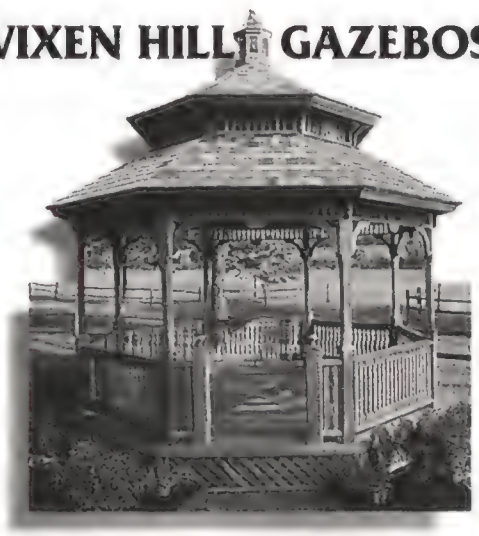

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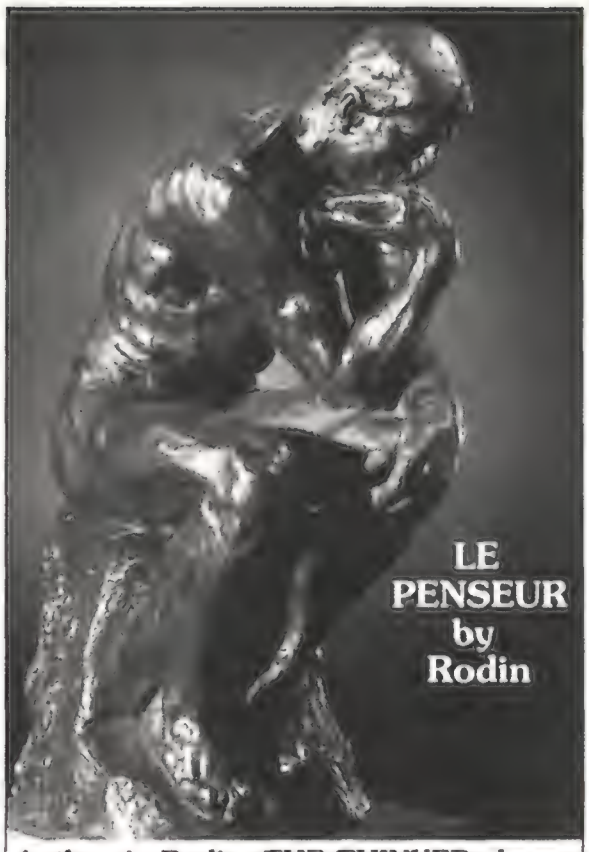
Mississippi, the more daring caught and skinned poisonous snakes to make purses they sold to guards. But group activities often made sitting out the war seem like one big endless summer camp: sports (Pechmann played soccer in an organized league); games; musical instruments; books and periodicals; letters and postcards; arts, crafts and theater; movies and concerts; exotic pets ranging from alligators to monkeys and parrots. On Staten Island, POWs grew and canned enough vegetables to last 650 men a full year. A prisoner in Mexia, Texas, used two Coca-Cola bottles as counterweights in making a clock that kept accurate time.

The ambitious also organized classes in every subject from bookbinding and Chinese culture to American Indian history and Hebrew. Or, with approval from the Nazi government, took correspondence courses from any of 103 U.S. trade schools and universities for full college credit back in Germany. Von Wechmar studied journalism through the University of Minnesota and became the United Press bureau chief in Bonn after the war, before embarking on a diplomatic career that ended as West German Ambassador to the United Kingdom. "I was never sent out on assignment," he jests of his two years behind barbed wire, "but I did learn how to write a news article."

Under the Geneva Convention POWs could be compelled to work for the host country with certain restrictions. Officers had to be kept in separate camps and could not be required to do labor (though many, like Von Wechmar, volunteered). Enlisted men were permitted to work anywhere provided the U.S. Government was paid the prevailing local wage and the job was physically safe, within their physical capacities and not directly related to waging war. (Sorting scrap iron in a foundry was allowed; turning it into tank parts on an assembly line was not.) They were used on railroads, but the labor unions officially deplored "turning loose Nazi soldiers, skilled in



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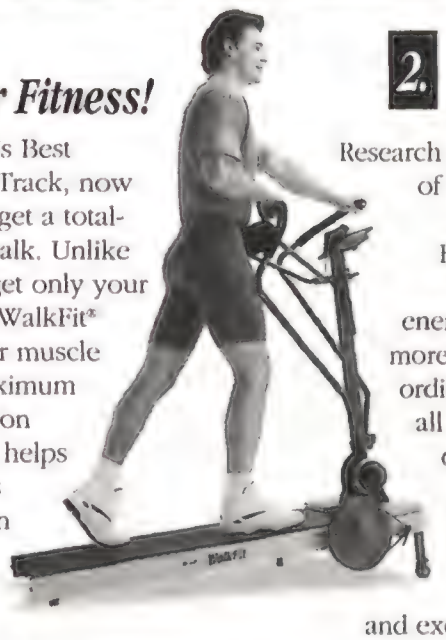

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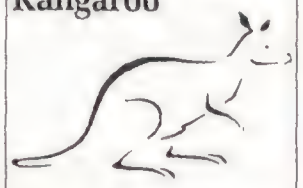

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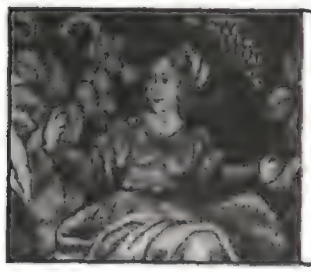

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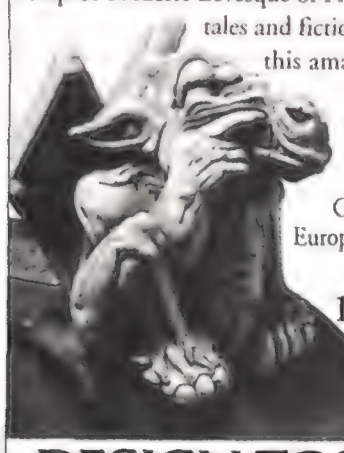

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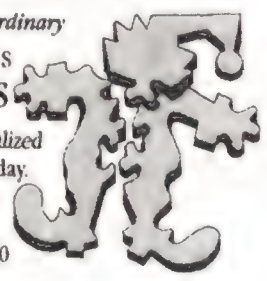

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demolition practices, to run amuck on the railroads."

The need for help on farms and in factories grew so grave that it was decided prisoners could be employed without tight security outside the camps. Eventually, tens of thousands of German prisoners at 511 branch camps in 44 states were working in canneries, foundries, quarries, lumber mills and coal mines. From California to the Carolinas, from the Dakotas to Texas, POWs were busy harvesting vital bumper crops that threatened to rot in the fields from unavoidable neglect. In Colorado, Von Wechmar was bused around to neighboring states to pick sugar beets and dig potatoes; in Wisconsin, Pechmann canned peas, processed hemp and cut asparagus. In Arizona, Walter Janek, one of those Germans whom a Huntsville, Texas, farmer had groused didn't know "a stalk of cotton from a goddamn cocklebur," picked so little his first day he wasn't sent back for a second. Generally, their American employers found POWs efficient, well-mannered, intelligent, good-natured and industrious.

Ninety-five out of 100 eligible POWs went to work in 1945, saving U.S. taxpayers $100 million that year in prisoner upkeep alone. As for security, the occasional guard, if one was even assigned to a work party, soon thought nothing of nodding off in the heat of the day or, to be on the safe side, detailing a POW to hold his loaded weapon while he napped in the shade.

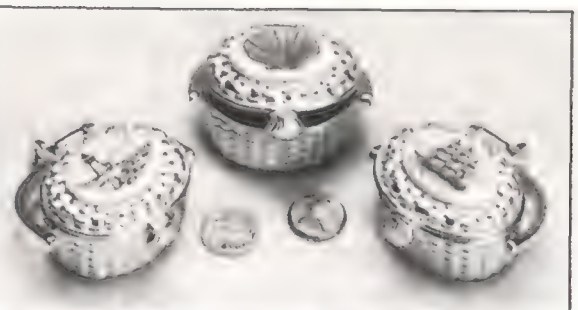
And why not? What with POW proxy weddings at Camp Shelby to sweethearts at home in Germany, with flowers, wine for the bridegroom and beer for the guests; Christmas parties at Camp Maxey, Texas, with stollen and German tobacco furnished by the Swiss; contraband booze at Camp Rucker, Alabama, made from fermented fruit and potatoes; ubiquitous hot showers, washing machines and canteen privileges, "Hell," exclaimed the commander of one Virginia camp to a reporter, "you couldn't drive some of those fellows out!" Gerster remembers that POWs in Atlanta, Nebraska, called their camp *der goldener Käfig*, "the golden cage."

Less than 1 percent of the prisoners managed—or bothered—to escape. To dupe their captors, some used tactics now familiar to Americans from Hollywood POW movies like *Stalag 17* and *The Great Escape*: simulated enemy uniforms, forged documents, lifelike

dummies. With enviable German efficiency, one escapee in September 1945 even employed as his checklist a magazine article by FBI Director J. Edgar Hoover on the do's and don'ts of successful flight. (Do go alone, don't talk any more than absolutely necessary, et cetera.) The POW hitchhiked to Peoria, Illinois, and took a train to Chicago, where he lost himself in its polyglot population, married, became a father, started a downtown bookstore and eluded capture until 1953. Less successful were the two burly runaways in Texas who, dressed in khaki shirts and shorts, hitched a ride and were asked by the truckdriver where they were going. Their fateful reply was worthy of that wacky TV sitcom *Hogan's Heroes*: "We're Boy Scouts going to an international convention in Mexico."

The only successful mass-escape attempt by POWs, from the dusty, mesa-spiked desert of Camp Papago Park, might as well have been designed by the American authorities to succeed. Among other things, the compound used for the breakout contained all the men in the camp with a history of attempted escape. As one of them later explained, "They locked us up with [other U-boaters] who had both engineering and organizational skills. They

The film *Stalag 17* (starring William Holden), while often comic, portrayed anxiety-filled life of American POWs.



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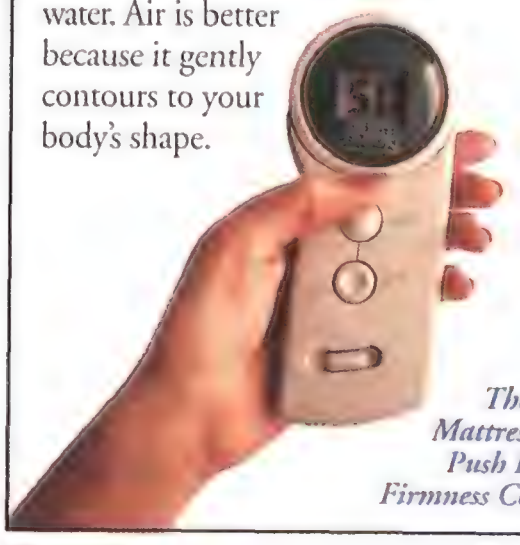

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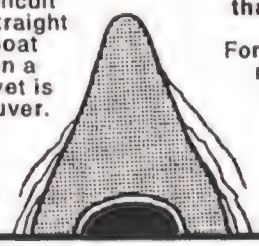

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did not specifically forbid tunneling . . . so why not?"

The prisoners began in September 1944 by digging a tunnel entrance outside a bathhouse at a "blind spot" behind a large coal box where, using a coal shovel and a pick with shortened handle, they could work without being seen from the guard towers. Early on, a connecting underground passageway was constructed from the bathhouse so workers would appear to be arriving there to take showers or wash clothes. Soon, no more dirt could be spread on flower beds or flushed down latrines without danger of discovery. What to do? The U.S. officer in charge was persuaded to let them clear and finish a field for *faustball* (fistball), an Italian form of volleyball. Their American captors even furnished shovels and rakes. Now, every night, under cover of darkness, a visible pile of dirt—ostensibly an overflow from leveling the *faustball* field—was spread around its perimeter.

On Christmas Eve, while the POWs in the adjoining compound were creating a noisy holiday demonstration as a diversion, the 25 men drifted into the bathhouse and vanished belowground in twos and threes. Some were captured by guards almost immediately, while most were caught later by civilian and military police acting on tips from suspicious Arizonans who wouldn't buy the fiction that these were Dutch sailors straggling back to sea. Not one made it to Mexico.

The most notable solo escape by a POW was Georg Gaertner's. One of those who faced return to Russian-occupied Germany whenever the fighting stopped, Gaertner saw as his passport to liberty a freight train that passed Camp Deming, New Mexico, at the same time every other night. In September 1945, fearing he might be repatriated into Russian hands at any minute, Gaertner slipped under a fence while his fellow prisoners were watching the weekly movie, jogged four miles and hopped a slow-moving boxcar. Almost before he was missed,

At Camp Swift, Texas, a sergeant checks supplies with POW cooks.

the train had arrived in the freight yards outside Los Angeles. Hunted by the FBI, Gaertner migrated north to the San Francisco Bay area where he moved from job to job and, as an expert skier and tennis player, taught both sports under an assumed name.

Gaertner's story, as related in his book *Hitler's Last Soldier in America* (coauthored by Krammer), reads like a splendid suspense novel. Because he lacked papers, the tall, taciturn man of saturnalian good looks and charm lived in perpetual fear of discovery. He hid his past even from his eventual American wife, and contrived to lose important matches in tournaments at posh tennis clubs when he realized publicity on local sports pages might alert the FBI to his whereabouts. Once, he led a patrol of cross-country skiers 17 miles though a prolonged Sierra Nevada snowstorm to rescue 226 people who were trapped beneath

Prisoners were allowed favorite foods, including pig's knuckles and würst.

20-foot drifts without food or heat in a freezing westbound train—then fled in panic when he appeared in a group photograph on the pages of *Life* magazine for January 28, 1952. But the pressures of leading a double life eventually became too much.

Prisoners of war, in fact, hardly posed the menace to the outside world that had been imagined. The real danger, slowly simmering away in the camps themselves, was to one another and to Germany's future, and rigid adherence to the Geneva Convention was partly to blame. In strictly avoiding formal prisoner indoctrination, the U.S. Government initially failed to segregate either the Nazi hard core—estimated at less than one-tenth of the POW population—or party sympathizers, another third, from the nonpolitical majority. To be sure, camps had been set aside in Alva, Oklahoma, Huntsville, Texas, and Pima, Arizona, expressly for Nazis who acted up in ways that disrupted good order. Following the rationale that Convention rules must be observed in giving POWs a share of responsibility for their own care, many American guard units all but gave up their own day-to-day authority. After the war one former Army inspector confessed: "Who could best get a work detail cracking? The Nazi noncoms. . . . Efficiency in laundry . . . increased 150 percent. And beautiful work! I mean, shirts came out clean!"

As time went on, some camps became a virtual extension of the highly politicized German Army, and a few were virtually run by fanatics. With impunity, the more politically zealous flashed the stiff-armed Nazi salute (an act not required by the German government until after the mid-1944 attempt to assassinate Hitler). They organized readings from *Mein Kampf* and generally made their camps, as one historian put it, "hell for the anti-Nazis and the political moderates."

In one camp, guards of Jewish descent were so harassed that they had to be quietly withdrawn. It was feared that if such incidents were publicized, the fact that Germans were being guarded by Jews might be seized upon by the Nazis as a pretext for retaliation against American POWs in Germany.

On October 18, 1943, Capt. Felix Tropschuh, 30, was found hanging in his room at Camp Concordia, Kansas. Nazi "investigators" suspected him of informing their captors of a planned escape. He had been found guilty by a "court of honor" for writing anti-Nazi sentiments in his personal diary and placed in a room with a rope and chair by Nazis who stood guard outside until morning. Circumstances impelled the U.S. Army to rule suicide.

Two weeks later, Cpl. Johann Kunze was invited to a late-night meeting of 200 POWs at Camp Tonkawa, Oklahoma. There, behind barred doors, he was informed that they had gathered to expose someone accused of giving military information to the enemy:

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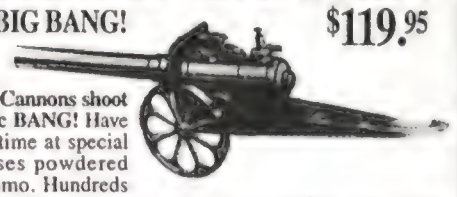

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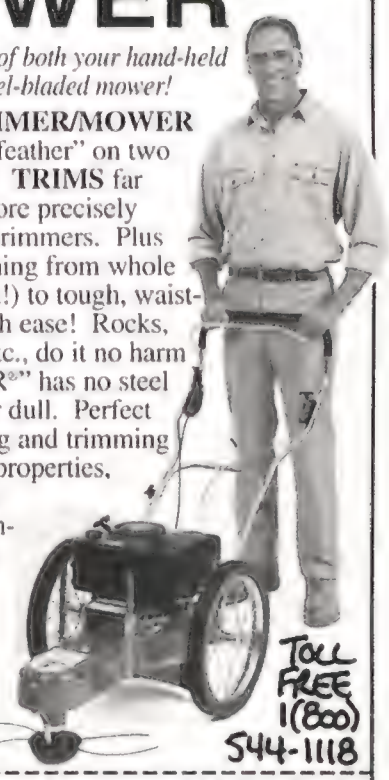

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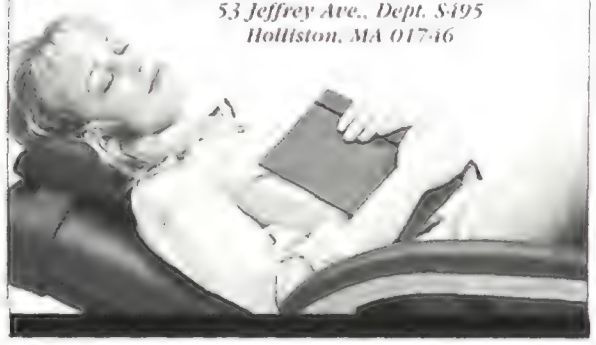

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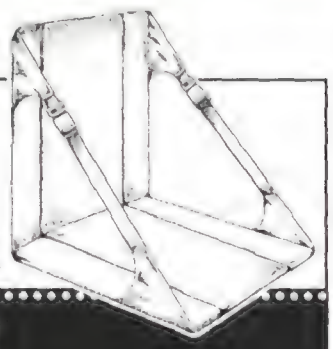

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himself. Found guilty, he was battered to death with clubs and broken bottles. This time the five killers would be arrested, tried and found guilty. On July 10, 1945, they became the first alien POWs to be executed in the United States.

A month after Kunze's death, Cpl. Hugo Krauss awoke in the dark at Camp Hearne, Texas, to find himself surrounded by club-wielders who had entered his compound through a hole cut in its fence. He died six days later of a fractured skull. The attackers were never found. His crime: as a boy he had lived in New York and spoke Americanized English that was considered "too good."

Before it was all over in April 1944, at least seven prisoners at six camps in as many states, accused of treasonous acts ranging from consorting with the enemy to liking American jazz, would die brutally at the hands of their German comrades or by suicide enforced through death threats against their families. Another 22 suspicious deaths during that period were ruled "suicides" by Army investigators who had no firm evidence of foul play. At one point syndicated columnist Dorothy Thompson and *New York Herald Tribune* women's page editor Dorothy Bromley privately appealed to Eleanor Roosevelt to intervene. Appalled, the First Lady invited one of the administrative higher-ups in the POW program to dinner and politely cross-examined him. Could such stories of Nazi rampaging be true? He hesitated but eventually briefed her thoroughly. "I've got to talk to Franklin," Mrs. Roosevelt said when he had finished.

At first the Army tried to hush up the stories, fearing again that they might trigger a Nazi reaction against American POWs. When muzzling failed, insurance statistics were trotted out in an attempt to convince the press that murder and suicide rates for POWs were actually lower than those of German civilians in peacetime. Unimpressed, journalists followed the real story. The *New York Herald Tribune* ran a guard's letter claiming Nazis at Breckenridge, Kentucky, had created "a little Germany, where persecution . . . is thorough and violent." The only American response that one persecuted prisoner got there, the paper reported, was a bottle of scent from a sympathetic surgeon for dousing any nighttime assailant so that he might be sniffed out in the morning.

In late spring a committee of educators, churchmen, Congressmen and writers, including exiled German novelist Thomas Mann, called on the U.S. Government to segregate non-Nazis and reeducate them in the ideals of American democracy. On August 23, 1944, word finally came down. To lay the groundwork for democracy in postwar Germany, and using as a loophole Geneva Convention Article 17, which encouraged "intellectual diversions and sports, POWs would henceforth be given 'facts, objectively presented but so selected and assembled as to correct' a decade of virulent Nazi indoctrination."

Almost until the time that the last German POW left these shores on July 23, 1946, the U.S. Government struggled to put the Nazi genie back in the bottle. A task force known informally as the "Idea Factory" had begun to

POW indoctrination eventually included holding democratic elections in camp.

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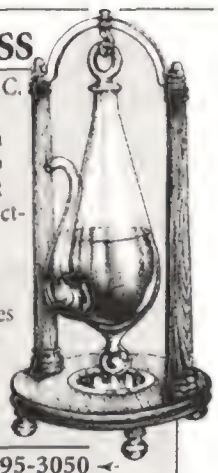

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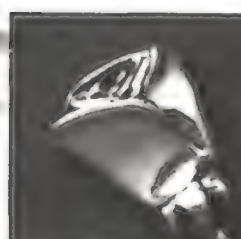

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work on the Intellectual Diversion Program in the fall of 1944. Operating in total secrecy, it drew together a cadre of military and civilian intellectuals, along with 85 handpicked anti-Nazi POW officers skilled in language, communication and teaching. Their mission: to fashion an effective, discreet instrument of de-Nazification from literature, films, newspapers, lectures, music and art, culture and the history of Western democratic institutions. Thereafter it was to be used on the prisoners at large—vigorously and, if possible, deftly—without the POWs and their government being fully aware of its purpose.

The Factory screened books, plays and films, and turned them into German-language teaching aids. It translated camp newspapers into English so that the strength of Nazi influence on their content could be analyzed. As a chief tool for reeducation, the Factory created a national biweekly newspaper, *Der Ruf* (*The Call*), for POWs.

It was placed on sale at camp canteens for 5 cents starting in March 1945, just two months before V-E Day. A slickly styled but ponderous pastiche of news, politics, music, literature, biography and philosophy, it was so Germanic and erudite, editors joked, "that even Thomas Mann would find it difficult to understand." In the first issue articles on Allied bombing raids against Germany, as well as about the Yalta and Tehran conferences, shared space with an examination of the human soul as seen by Schiller, Goethe and Schopenhauer.

Nazi prisoners bought up copies of *Der Ruf* and burned them, threatened POW readers and posted signs that demanded of prisoners: "Boycott [this] shameful newspaper! Washington wants to make an experiment of us!" Within a year, though, *Der Ruf*'s circulation jumped from 11,000 to 80,000. Monitored POW mail indicated that it was increasingly accepted as the truth. At Camp Mackall, North Carolina, elections were sponsored in which two Democrat factions not only won but

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sent an affidavit to the authorities asking that theirs be declared a "democratic camp" as a consequence.

Following Germany's surrender, POWs were required to watch films of Nazi concentration camp atrocities. Some prisoners watched unmoved or dismissed the emaciated bodies as German victims of Russian depredations. When surveyed, only one-third of 2,000 POWs would concede under questioning that the scenes were real, but the films had a greater impact than many would admit. A thousand POWs at Camp Butner, North Carolina, burned their uniforms. Prisoners at several camps collected money for the victims.

When the war in Europe ended on May 6, 1945, the Factory quickly turned its attention to training amenable POWs for possible work with the new American Military Government (AMG) in Germany. More than 3,700 non-Nazis—three-quarters of them either university graduates, white-collar workers or former civil servants—were screened from 17,000 applicants nationwide and given eight weeks of instruction in English, military government and history. At first, despite the presence of such outstanding POW graduates as Walter Hallstein, who went on to become rector of the University of Frankfurt and president of the European Economic Community in the 1960s, few of the Factory-reeducated ex-prisoners were employed by the AMG. But by 1947, six out of ten held responsible jobs.

Just how effective the hasty U.S. attempt at formal rehabilitation was remains a question. As one Factory officer quipped about his students, "Most of them know [now] that there is only one Superman and that he is an American reporter on the *Daily Planet.*" Somewhat more seriously, later surveys showed that after the war, compared with the rest of the German populace, four times as many ex-POWs belonged to a political party. "Just watching how a democratic country is run, even during wartime, had an impact," Von Wechmar recalls. "I could have ended up dead or in Siberia instead of being among the many exposed to a free system."

In 1945 a hidden camera at Fort Leonard Wood, Missouri, recorded the expressions of German POWs as they watched a film of Nazi death camps.

Many observers believe that contract labor performed by POWs outside the camps did more than Factory courses to rehabilitate their thinking. Like Colonel Nicholson and his British POWs who "showed" the Japanese how to engineer and build a bridge in Pierre Boulle's classic, *The Bridge Over the River Kwai*, German POWs took pride in organizing and executing their assigned tasks with a minimum of outside supervision—and earned the lasting respect and affection of their employers as a result. East Texas farmer Lloyd Yelverton remembers: "They were just the best bunch of boys you ever saw in your life." Farm wives mended the POWs' clothes, taxied them to town and church, cooked meals for them and overwhelmed them with baked goods. Doting families later sent food packages to Germany and saw to it, when the POWs came back to visit, that they received the key to the city and were honored with a banquet or civic parade. There can be no doubt, either, about the deep sincerity of thousands of ex-POWs who moved back to America—among the 360,000 Germans who immigrated here between 1948 and 1960.

The last U.S.-held German prisoner of war was released on June 30, 1946. Surviving relics of the largest-ever foreign invasion of America are now few and far between. Most of the camps have long since crumbled into dust. Still, the memory lingers. Some years ago Rudigar von Wechmar, then West German Ambassador to the United Nations, brought his wife and daughter to Colorado to see his old camp at Fisher's Creek, near Trinidad. They could not find a single stick of it. As they were leaving, Von Wechmar, who had seen postcards in a drugstore depicting a peak that towered over his camp, stopped the car and asked his wife to run in and buy some. She returned saying the owner wanted to see him.

"Were you a POW here?" the man asked when Von Wechmar entered.

"Why, yes," Von Wechmar said. "How did you know?"

The man laughed. "I was a farmer during the Second World War. I used POW labor. Only ex-POWs buy postcards of Fisher's Peak."

After POWs on Staten Island watched films of Dachau and Buchenwald, many claimed atrocities were faked or had been the work of advancing Russians.

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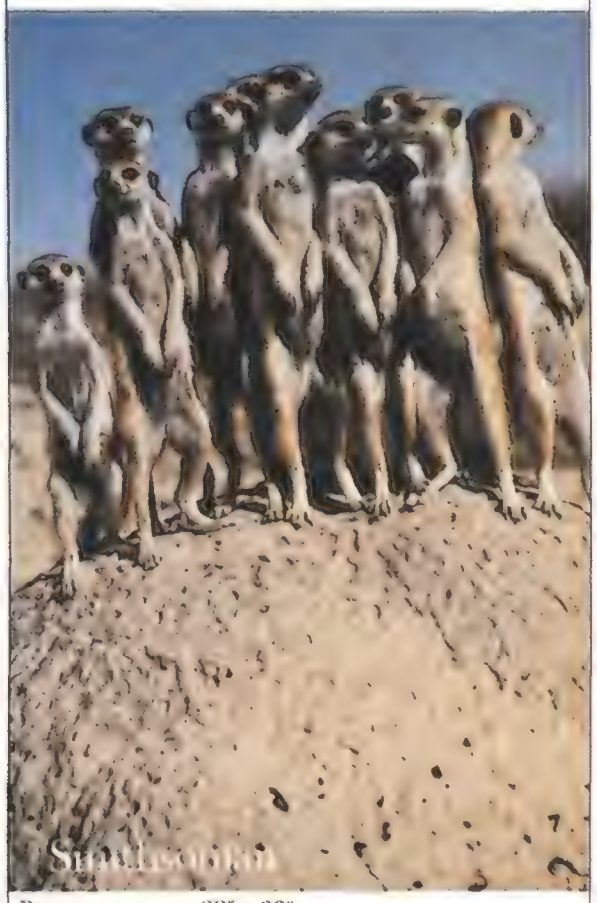

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Book Reviews

Going, Going, Gone: Vanishing Americana
Susan Jonas and Marilyn Nissenson
Chronicle Books, $18.95

In 1967 a manufacturer of technical equipment commissioned a report on the future of technology. *Life in the Year 2067* predicted domed cities and 3-D television but failed to foresee the imminent demise of the sponsoring company's best-known product, the slide rule. By 1984 an engineering professor canvassing first-year students could not find even one who could tell him what a slide rule was.

Slide rules, card catalogs, carbon paper, vinyl records, drive-in movies, stockings, girdles, black-and-white films, women's navy blue suits: everyday necessities and luxuries at midcentury, endangered or extinct by century's end. Without judgment or sentimentality, *Going, Going, Gone: Vanishing Americana* chronicles their rise and fall, and that of 62 other items Americans used or knew in daily life. Illustrated with black-and-white photographs and larded with fascinating facts, this alphabetically organized compendium tells how each item came into its own and why it later came undone. It's a page-turner with plenty of surprises.

We see history repeating itself. In 1905 the first outdoor pay phone sat on a stanchion on a busy Cincinnati street. Users complained of street noise and lack of privacy, and the experiment was deemed a failure. Seven years later the Bell System introduced a wood-and-glass booth with a hinged door, available in walnut, oak, mahogany and birch. It was a hit. Options included swivel chair, armrest, ashtray and writing ledge. But times change, and with them the selling points of pay phones changed from convenience and luxury to durability and security. In 1972 vandals smashed 35,000 phone booths per month in New York alone, and two years later AT&T stopped making enclosed booths altogether, reintroducing walk-up phone stands. They are not unlike their precursor, spurned 70 years earlier for its lack of privacy. But this time, it was only Clark Kent—in the 1978 film version of *Superman*—who seemed to care in the least.

Like some of the subjects of *Going, Going, Gone,* the book's value would be short-lived if it were limited to the material goods of daily life. What elevates it above the level of an antiquarian catalog is inclusion of the social phenomena and political institutions that have changed or disappeared as surely as Automats and soda fountains. We find out about blue laws, the Red Menace, civil defense, two-newspaper towns, fine penmanship, the menopause taboo—before, during and after their heyday.

And remember the house call—that mission of mercy conducted by the family doctor, the healer in a sensible sedan who, upon arrival, "pulled out a stethescope and a tongue depressor from his black satchel and made the patient say *aaah*"? (He prescribed white pills to be taken three times each day with plenty of fluids.) Children of the 1950s, the last to experience such cosseting, were given an extra pillow, and milk toast and Jell-O on bed trays.

By the mid-1960s, the *New York Times* was reporting that the general practitioner was, "like the bison of the plains, a vanishing phenomenon." Today, as anyone who has bundled a howling toddler into a car seat for an office visit can attest, the house call has gone the way of the GP.

An entry on the smell of burning leaves took me right back to autumn bike rides through the suburban neighborhood of my youth. Another on the military draft evoked less-pleasant memories, but the historical perspective added a dimension that didn't interest me during those emotionally charged Vietnam War years. I felt my age when I confronted the demise of "teenage dating" as I knew it. Once ubiquitous, its conventions allowed young people to enjoy many opposite-sex companions—so long as they didn't enjoy them too much. "She often saw the same movie twice in one weekend because she didn't want to tell Saturday's date what

she'd done the night before," write Jonas and Nissenson of the generic teenage miss of yesteryear. "All through the evening there was unspoken tension about how it would end. Should they kiss on a first date? . . . Dating was not so much about collecting suitors as it was about avoiding sex." The sexual revolution changed all that. As a ritualized institution, claim the authors, dating is gone. It has been replaced by something resembling serial monogamy—less formalized but far more intense than the ring of the doorbell, the introduction of Mom and Dad, the 11 P.M. curfew and hasty good-night kiss.

Not only dating, but mending, dining rooms, handkerchiefs, fire escapes, suntans, landfills, fur coats—they may not yet be gone, but they aren't what they used to be. This reader had just written a check to his dentist before finding both "bank checks" and "cavities" in the book. The authors explain that dental cavities may never be eradicated to the extent that smallpox has, but fluoride in the drinking water of two-thirds of the American population (and possibly, the antibiotics and preservatives most of us ingest) means that at least half of America's children can say, "Look, Ma! No cavities!" Check writing will peak in the 1990s, they say, but several decades will pass before debit cards and other methods of electronic fund transfer put bank checks completely out of business. Still, it's a bit of a shock to know that the rent check will go the way of the slide rule.

In their nonjudgmental reportage, the authors offer no views about which changes are to be mourned or cheered. I am glad they resisted the temptation. By presenting the facts and leaving the opinions to their readers, they provide the tools for us to create our own experiences. Few will lament the demise of rotary phones, tonsillectomies, polio scares, civil defense or the black smoke of a thousand unregulated factory stacks. But what about family farms, safe hitchhiking, two-newspaper towns, smiling gas-station attendants, and baseball players who stay with one team?

In contemplating the kinder, simpler life our children will never know, we discover the inherent ambiguities of progress. Once you've read about the decline of nuclear families, political bosses, segregated men's clubs and parietal rules on campus, your reaction may tell you something about who you are. This potpourri of charming essays and images is a ticket for both time travel and self-discovery.

David M. Schwartz writes from his home in Yountville, California.

The Hot Zone
Richard Preston
Random House, $23

Just when you thought it was safe to ease out of your movie-theater seat and head home from a close encounter of the viral kind in *Outbreak*—wait. It turns out that Dustin Hoffman and Morgan Freeman haven't even begun to tell the real story. For that you'll have to go to Richard Preston's riveting *The Hot Zone*, the book that started it all. Lurking beyond the bounds of Preston's brilliant reportage are sobering, and compelling, questions about the nature of viruses and the research that is beginning to elucidate their mysteries.

When the U.S. Army, in a morning rush-hour maneuver, moved from Fort Detrick, Maryland, to a small suburban mall in Reston, Virginia, to wipe out a colony of sick African monkeys housed there, people in the greater Washington, D.C. area had no idea they were being saved from the threat of a plague far worse than the Black Death of the Middle Ages. The monkeys, imported for research, arrived infected with a mysterious rain-forest virus thought to be the deadliest ever known—a virus, Richard Preston writes, that "does in ten days what it takes AIDS ten years to accomplish." The Army's secret assault on the virus in December 1989, and the history of several earlier outbreaks of such viruses in Africa and Germany, are narrated with chilling, graphic detail in *The Hot Zone*, a book not meant for readers with faint hearts or weak stomachs. There are paragraphs here that could of themselves produce cold sweats and shortness of breath.

Once you are infected with these viruses, Preston reports, vital organs such as your liver "begin to liquify," your skin "bubbles up" into a rash "likened to tapioca pudding," and "you may weep blood." I will leave aside other details. His description of one emerging virus, however, will illustrate Preston's way with words. Noting its ability to jump from one primate species to another, he writes, "It did not know boundaries. It did not know what humans are; or perhaps you could say that it knew only too well what hu-

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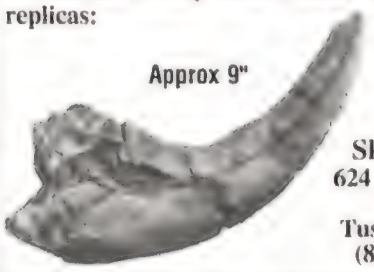

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mans are: it knew that humans are meat."

The viruses Preston writes about belong to a small family of "thread viruses" named Marburg and Ebola, seemingly primitive particles of RNA (genetic copying instructions) and proteins. Of Ebola's seven proteins, three are vaguely understood and four are "completely unknown—their structure and their function is a mystery."

Marburg first showed up in 1967 in a vaccine factory in Marburg, Germany, and was traced to cells from African green monkeys. Seven people died, a quarter of those infected. The first known Ebola outbreak was in Sudan in 1976. The virus spread rapidly from village to village, killing half of its victims. Two months later, an even deadlier strain of Ebola hit Zaire, erupting simultaneously in some 50 villages, killing nine out of ten people it infected. Zaire's president, Mobutu Sese Seko, called out his army to seal off the Kinshasa hospital and the entire zone of infected villages, with orders to shoot anyone trying to come out.

Preston's account makes these events unforgettable, tracing them back to individuals with names and faces and stories, not only the victims but the doctors and scientists willing to risk their own lives to treat and investigate these mysterious outbreaks. The book then focuses on the 1989 emergence of Ebola in the Reston, Virginia, monkey colony, and the Army's attempts to identify and fight this most feared of "hot agents."

Preston takes us inside the Army's Medical Research Institute of Infectious Diseases at Fort Detrick, the labs that once developed biological warfare weapons and now search for new vaccines and seek to unravel the mysteries of lethal viruses like Ebola. To work with anything like Ebola, researchers must wear bulky biological space suits and go through elaborate safety and security precautions.

Yet the story Preston tells is full of accidents and misjudgments, and enough scientists and monkey handlers were exposed so that, had the virus really been the deadly strain of Ebola, a major plague might very well have been unleashed. In the end, the Reston Ebola proved fatal to monkeys but seemed to infect humans without any harm, although it is so nearly identical to the deadly Zaire virus that scientists still cannot see the difference. By the slenderest thread of some unknown molecular detail, this book reads like a prophecy instead of a postmortem.

Preston casts this story as a scientific thriller, which it is. And he writes in the manner of such popular novelists as Michael Crichton, Robin Cook and Stephen King, who have made the "strange virus outbreak" into a literary convention of high-tech, neo-Gothic horror. As a result, this book is hard to put down, very scary, crammed with the detail that can make fiction seem real—or reality read like fiction: "She opened up the space suit and laid it down on the concrete floor and stepped into it, feet first. She pulled it up to her armpits and slid her arms into the sleeves until her fingers entered the gloves. The suit had brown rubber gloves that were attached by gaskets at the cuffs."

The genre Preston has inherited from the fiction writers draws you in by amassing small, even trivial details, and he is a master at this. But in a science thriller about the realities of AIDS and the threat of future epidemics, one might hope to find the insights of science as well as the ingredients of a thriller. Describing a tense moment when three Army officers arrive at a Virginia gas station to wait for a clandestine hand-off of some dead Reston monkeys for analysis, Preston pauses to tell us, "Nancy went into the gas station and bought Diet Cokes for everyone and a pack of cheddar-cheese crackers for herself, and she bought C.J. some peanut butter crackers." This junk-food prose would be fine if Preston gave more attention to the larger questions this story raises.

He reports, for instance, the Army's decision during the crisis to take actions it thought might be illegal. "You never ask a lawyer for permission to do something," the general in charge tells his staff. "We're going to do the needful, and the lawyers are going to tell us why it's legal." He also notes, as the Army prepared to move on the Reston monkey colony, that "half of this biocontainment operation was going to be news containment." Disregarding the law and deceiving the press may have seemed necessary at the time, but these decisions deserve some ex post facto scrutiny and serious contemplation. Here they get no more attention than those officers' snacks.

More important, perhaps, are the questions of science that are never explored. There are clues scattered

throughout this story that our relation to viruses is more complex and less understood than our image of them as "individuals," as deadly predators, might suggest. Despite repeated dire predictions throughout these pages of epidemics similar to that in Crichton's classic *Andromeda Strain*, the early outbreaks in Germany, Sudan and Zaire soon mysteriously abated, leaving both the doctors and the scientists puzzled.

Of Sudan, Preston simply says, "For reasons that are not clear, the outbreak subsided and the virus vanished." And of fears that Ebola Zaire would devastate Kinshasa, "But to the strange and wonderful relief of Zaire and the world, the virus never went on a burn . . . and went back to its hiding place in the forest." And the Reston virus proved infectious but mysteriously innocuous.

Yet these curious facts are left strangely unexamined. It may be as vital to understand why these viruses retreated as to understand why they attacked, but this question isn't asked. "Viruses," Preston writes, "are molecular sharks, a motive without a mind. Compact, hard, logical, totally selfish. . . ." Indulgence in such anthropomorphism and metaphor reinforces a terrifying Darwinian view of "Nature, red in tooth and claw," but it blinds us to new views from molecular biology.

Current research suggests that viruses may be more like wandering messengers than alien predators, their visitations serving to exchange genetic information among individuals and species in an ecology more intricate and a biochemical balance more delicate than we have yet realized. One promising experimental drug for AIDS is based on this idea: it blocks a receptor site for the virus' message instead of working through the immune response.

Preston concludes that "AIDS is the revenge of the rain forest" for human incursions and overpopulation of the Earth. "It is only the first act of revenge," he adds. Marburg and Ebola pose the new threat of a virus "trying, so to speak, to crash into the human species." These images may owe more to the fictions we know than to the truths we have only begun to recognize. Peering into the edges of the rain forest, Preston shows us a landscape of infectious terror, but he misses a path into the frontiers of science.

Paul Trachtman is a freelance writer based in rural New Mexico.

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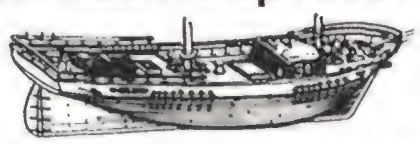

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By Daniel Pinkwater

When I said I wanted a dog, Bootsie was not what I had in mind

I like to think of myself as a person who is as free of prejudice as anyone can be. And I extend this liberality to dogs. I've known too many dogs in my lifetime to write off any one breed or type as inferior, superior, or even possessed of a specific and predictable set of personality traits or character.

One has preferences. I like a dog that isn't in danger of being killed outright if I should accidentally tread on it. I like a dog you can pet without having to get down on the floor. But that's not to suggest that small or even tiny dogs are less possessed of those virtues that make dogs admirable.

All of which is by way of stating that dogs are as varied as human beings and individually as deserving of our respect. To generalize is to display ignorance, and I like to believe I'm not ignorant. And yet . . . if I had to pick a single breed of dog for the existence of which I would be hard put to think up an excuse . . . if I had to pick one breed with no conceivable purpose on Earth other than to demonstrate the fecklessness and folly of Man in the person of dog breeders . . . if I had to pick a breed of dog with which I'd less rather consort than with parrots . . . I'd pick the Boston terrier.

The Boston terrier was originally a cross between a bulldog and a white English terrier, created by a subspecies of humans that takes pleasure in organizing dogfights. It is a flat-faced, bug-eyed, wheezing, snorting, snoring, flatulent little excrescence, almost always delivered by Caesarian section because of its ugly, outsize knob of a head.

I need hardly tell the reader that it was a Boston terrier that my father chose for me.

This was an outstanding expression of my father's eccentricity, and dominance. I had brought up the possibility of a dog—I remember suggesting a collie or a husky—in conversation with my father, which prompted him to begin scouring the classifieds and circling ads for pomeranians, papillons, teacup poodles and Japanese spaniels. It's no trick for a grown man to coerce a 10-year-old boy in the matter of the choice of a dog. All puppies are cute, and compared with the caprices and grotesques he favored, the Boston terrier appeared to be a very serviceable sort of dog.

We visited various dealers in dogflesh he had located, all in out-of-the-way places with prisonlike back rooms in which puppies were arrayed in cages. We both had misgivings about Bootsie. Mine were the obvious ones. His, I believe, had to do with the fear that she might not grow up to be sufficiently outlandish and repulsive. I was partially and temporarily mollified by the assurance that she could grow up to weigh all of 20 pounds. And my father need not have worried—what Bootsie lacked in the way of deformity and hideousness (not much, really) would be more than made up for by her many quirks of personality.

Bootsie made a good deal of noise when sleeping. She had a delicate stomach, and my mother had to cook special food for her—sheep hearts and kidneys, stewed. This was prescribed, and the raw organs supplied, by my father's animal medical adviser, an unqualified vet who ran a combination clinic and butcher shop and had sold us the dog in the first place.

That Bootsie was an embarrassment around the neighborhood is, of course, an understatement. The image of the loyal dog bounding along beside the bike evaporated before very long. Bootsie was not the bounding sort, let alone loyal. In no time, reality set in. Already I was an outsize kid, similar to a blimp in shape. A nervous, wheezing little dog, looking like a trained flea at the end of its leash, was all I needed to emphasize my awkwardness, and my attempt to convince passers-by that I was walking her for someone else only served to mark me as a feebleminded boy who talked to himself.

Bootsie was terrified of my father and wet the carpet whenever he spoke to her. And although she allowed me to leash her up and drag her outdoors, where she found nothing of interest, Bootsie never indicated in any way that she recognized me from one encounter to the next. She spent most of her time in the kitchen, sitting motionless, her little gargoyle face and bat ears directed toward the gas range, where, come 4 o'clock, my mother would begin to stew her offal.

Even in those days it had dawned on me that we were not a lovable family—but dogs are supposed to love you, even if you're not. Although we'd had Bootsie since her puppyhood, she simply failed to take a liking to any of us. I knew this from a hundred signs but principally because she would leave home every chance she got.

She'd burrow under the fence and disappear. Two or three days would pass, and we'd get a call from miles away. Someone would have found Bootsie and read our phone number off the tag on her collar.

My mother didn't drive, and Bootsie would usually come home in the backseat of a taxi. She'd hang around for a couple of weeks and then run off again. One day she left and never came back. In a year or two, the redolence of sheep's kidneys in our house faded enough so that visitors ceased to comment on it.

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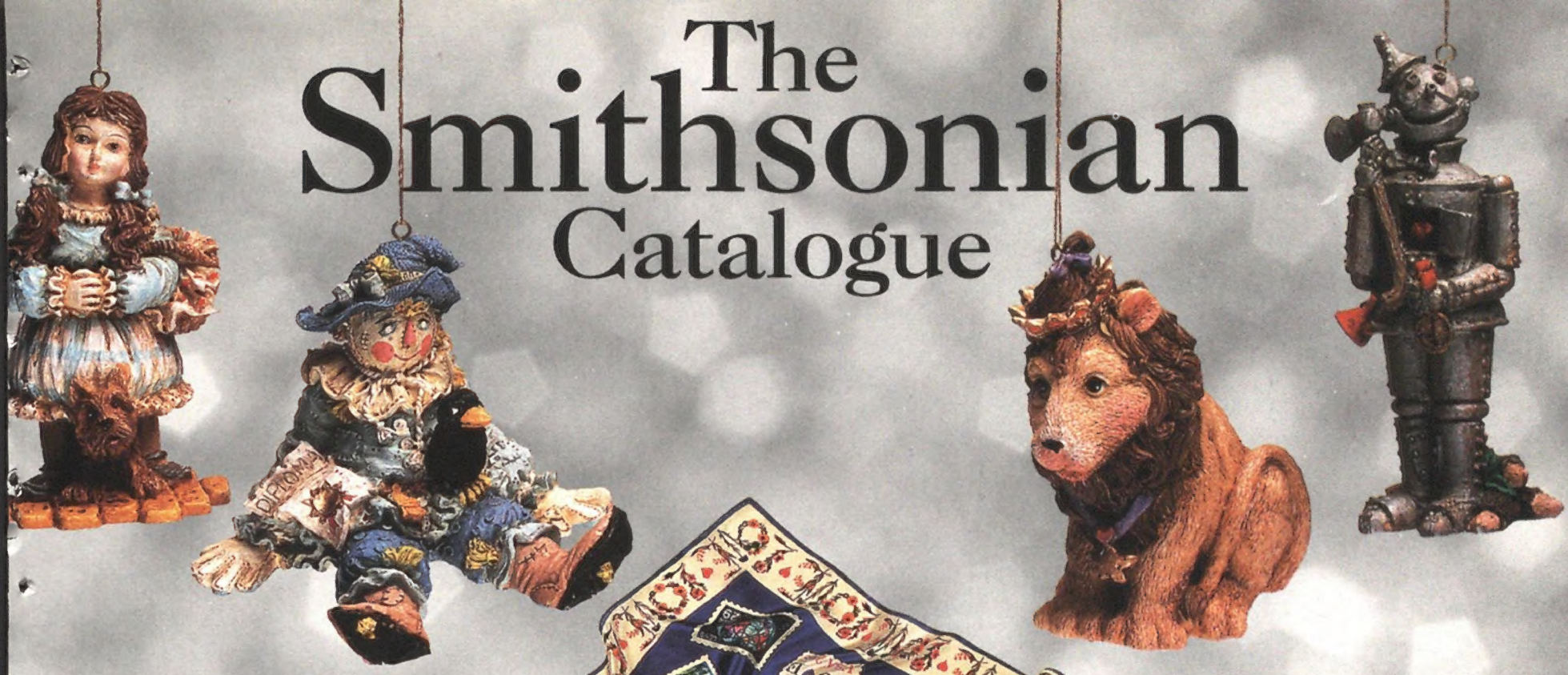

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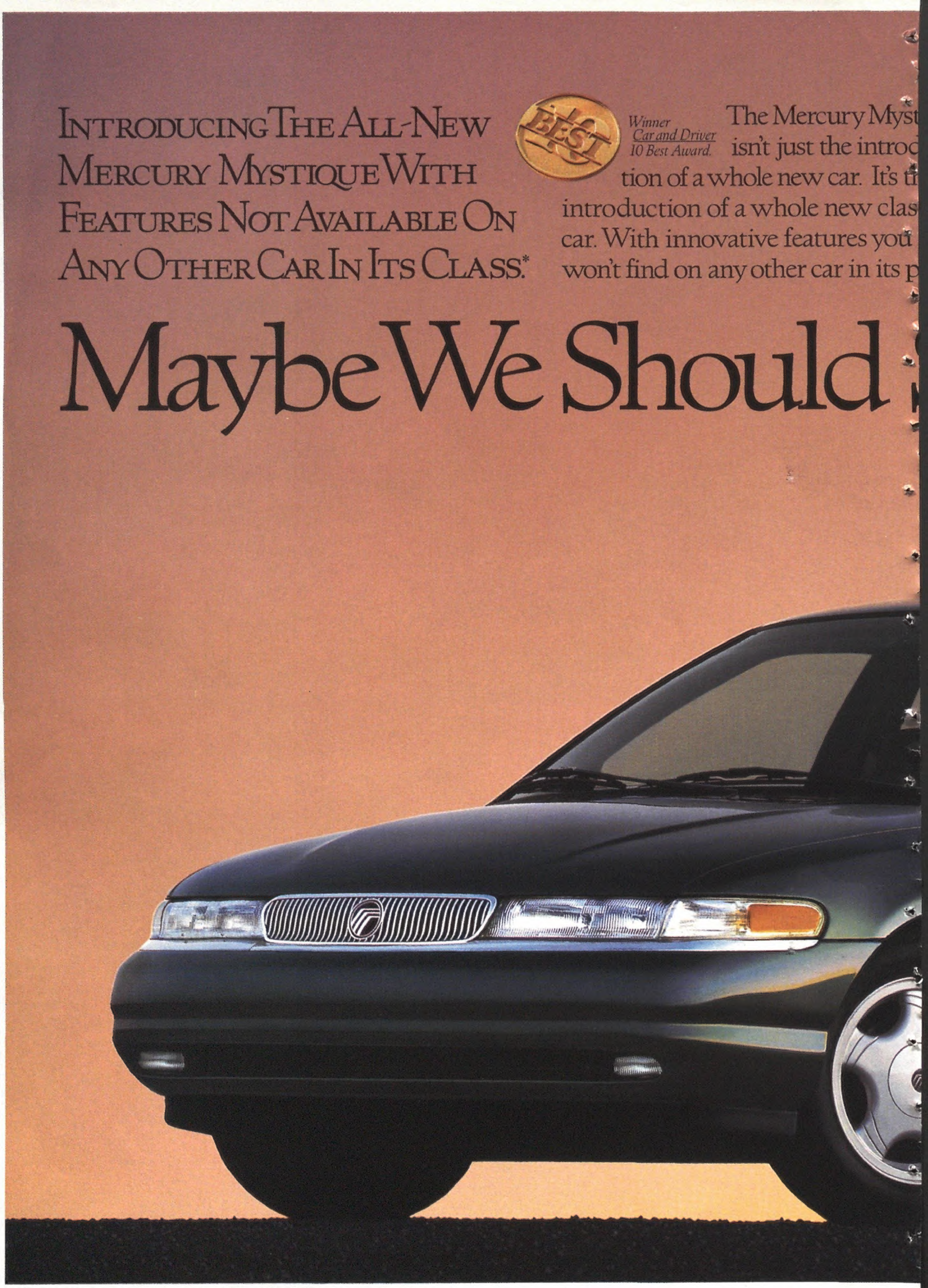

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